

Prepared for

CP Development Company L.P.

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San Francisco, California 94104

RISK MANAGEMENT PLAN HUNTERS POINT NAVAL SHIPYARD SAN FRANCISCO, CALIFORNIA

Prepared by

Geosyntec 
consultants

engineers • scientists • innovators

1111 Broadway, 6th Floor
Oakland, California 94607

Project Number: ~~WR1247~~WR2403

DATE ~~2017~~2018

Revision 1

Risk Management Plan

Hunters Point Naval Shipyard

San Francisco, California

Prepared by

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Senior Principal

Project Number: ~~WR1247~~WR2403
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LIST OF ACRONYMS AND ABBREVIATIONS

ADMP	Asbestos Dust Mitigation Plan
ARIC	Area Requiring Institutional Controls
ATCM	Airborne Toxic Control Measures
BAAQMD	Bay Area Air Quality Management District
BGMP	Basewide Groundwater Monitoring Program
Cal/OSHA	California Occupational Safety and Health
CCII	Commission on Community Investment and Infrastructure
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986
CIH	Certified Industrial Hygienist
City	City and County of San Francisco
COC	chemical of concern
COPC	chemical of potential concern
CP DevCo	CP Development Co., LP
CRUP	Covenants to Restrict Use of Property
CWA	Clean Water Act
DCP	Dust Control Plan
DTSC	California Department of Toxic Substance Control
DWR	Department of Water Resources
EHSPs	Environmental Health and Safety Plans
ESLs	Environmental Screening Levels
FFA	Federal Facilities Agreement
FOST	Finding of Suitability to Transfer
GMP	Groundwater Management Plan
HPS	Hunters Point Shipyard or Hunters Point Naval Shipyard

IR	Installation Restoration
LUCRDs	Land Use Control Remedial Design documents
mg/kg	milligrams per kilogram
MPPEH	material potentially presenting an explosive hazard
Navy	United States Department of the Navy
NFA	No Further Action
NOA	naturally occurring asbestos
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
O&M	operation and maintenance
OCII	Office of Community Investment and Infrastructure as, the <u>commonly referred to name of the Successor Agency to the San</u> Francisco Redevelopment Agency
OSHA	Occupational Safety and Health Administration
OVM	organic vapor monitor
PID	photoionization detector
PPE	personal protective equipment
PSC	Petroleum Strategy Criteria
QSD	Qualified SWPPP Developer
RACR	Remedial Action Completion Report
RAWP	Remedial Action Work Plan
RD	Remedial Design
RG	Remediation Goals
RMP	Risk Management Plan
ROD	Record of Decision
RSL	Regional Screening Level
RWQCB	Regional Water Quality Control Board
SFDPH	San Francisco Department of Public Health
SFPUC	San Francisco Public Utilities Commission

<u>SGAL</u>	<u>Soil Gas Action Level</u>
Shaw	Shaw Environmental Inc.
SIP	Soil Import Plan
<u>Site</u>	<u>the former Hunters Point Shipyard or Hunters Point Naval Shipyard</u>
SSHO	Site Safety and Health Officer
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	California State Water Resources Control Board
TCE	trichloroethene
TPH	Total Petroleum Hydrocarbons
UCRP	Unexpected Condition Response Plan
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds
WDRs	Waste Discharge Requirements
XRF	X-ray fluorescence

1. INTRODUCTION

The United States Department of the Navy (Navy) has conducted environmental investigations, feasibility studies, removal actions, and remedial actions at the former Hunters Point Shipyard or Hunters Point Naval Shipyard (HPS or Site) in San Francisco, California. These activities have been conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986 (CERCLA), the Clean Water Act (CWA), and state-specific environmental programs in consultation with the United States Environmental Protection Agency (USEPA), California Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (RWQCB) as specified in a Federal Facilities Agreement (FFA) for HPS (Navy, 1992). These federal and state regulatory agencies, along with the Navy, are referred to as the FFA Signatories.

The land at HPS is divided into Parcels, as depicted in Figure 1-1. In accordance with the final Records of Decision (RODs) for each Parcel, the Navy is responsible for implementing environmental cleanup activities to provide for protection of human health and the environment. For implementation of environmental activities for each Parcel, the Navy has prepared Land Use Control Remedial Design documents (LUCRDs) and Operation and Maintenance (O&M) Plans, which specify requirements for all future landowners. For RODs that call for land use and activity restrictions, the LUCRDs provide that the Navy will enter into a Covenant to Restrict Use of Property (CRUP) with DTSC for that Parcel, which will specify Restrictions applicable to the Parcel. The Restrictions in a CRUP run with the land in perpetuity and are enforceable by DTSC against Owners of the Site. Generally, the Restrictions specify land uses and activities that are prohibited or are restricted except with the approval of an Activity-Specific Work Plan approved by the FFA Signatories.

The Risk Management Plan (RMP) is a document called for by the LUCRDs, which provide that, “An RMP will set forth certain requirements or protocols that, if followed, will allow certain activities that are otherwise restricted to be performed without additional approval by FFA signatories”. This RMP complies with this provision of the LUCRDs by specifying circumstances and conditions under which certain Restricted Activities may be performed without additional FFA Signatory approval, hereafter referred to as Restricted Activities Authorized with Conditions (see Section 2.1). For all other Restricted Activities, the Owner must prepare and submit a Restricted Activities

Work Plan for FFA Signatory approval prior to conducting the work (see Section 2.2.2). In addition to providing the manner in which Restricted Activities Authorized with Conditions must be performed, the environmental procedures and protocols set forth in this RMP are intended to provide a basis for the Owner to prepare site-specific work plans for FFA Signatory approval.

The Navy intends to transfer HPS property to the Office of Community Investment and Infrastructure (OCII), the Successor Agency to the San Francisco Redevelopment Agency. The transfer of property will occur after the Navy has prepared a Finding of Suitability to Transfer (FOST), and the FFA Signatories have concurred that the property is suitable for transfer for its intended future use.¹ The OCII, in conjunction with its developer, CP Development Company L.P., (CP DevCo), and in consultation with the FFA Signatories, has prepared this RMP. The FFA Signatories have approved the RMP. A definition of terms used in this RMP is included in Appendix A.

The RMP is organized as follows:

- **Section 1**—: Introduction, including the RMP Scope and additional administrative document information.
- **Section 2**—: Restricted Activities Authorized with Conditions and Reporting and Notification Protocols.
- **Section 3**—: Risk Management Protocols Required for All Site Work: Presents risk management measures that must be implemented during Restricted Activities on the Site to ensure the integrity of the implemented remedies.
- **Section 4**—: Risk Management Protocols for Work in Certain Areas with Known Environmental Conditions: Presents risk management measures that must be implemented during Restricted Activities, including special protocols, to ensure the integrity of the implemented remedies.

¹ The reader may refer to the FOST documents for each respective Parcel which documents the FFA Signatory approval. FOST documents can be found in the document repositories (see Section 1.5).

- **Section 5—: References:** Lists referenced documents used in the preparation of this RMP.

1.1 RMP Scope

The Navy and OCII contemplate that land at the HPS will be transferred in discrete Parcels over time. The collective Parcels that have transferred and are subject to this RMP are herein referred to as the “Site”. This RMP, Revision 1, applies specifically to the Parcels depicted in Figure 1-1. The RMP will be a living document and will be modified as each Parcel or Parcels of land are transferred from the Navy to OCII. As illustrated in Figure 1-1, the RMP applies to those Parcels where: a) a remedy is in place; b) the FFA Signatories have approved a Remedial Action Completion Report (RACR); c) the FFA Signatories have concurred on a FOST; d) ownership of the land has been transferred from the Navy to the OCII; and e) the Navy has entered into a CRUP with DTSC specifying Restrictions applicable to each Parcel. As the Navy transfers land Parcels to the OCII, subject to FFA Signatory approval, and those Parcels become subject to this RMP, the RMP and Figure 1-1 will be updated and, upon approval from the FFA Signatories, will be made available in the HPS information repositories (see Section 1.5) and on the San Francisco Department of Public Health (SFDPH) HPS Redevelopment website (<http://www.sfdph.org/dph/EH/HuntersPoint/default.asp>). Figure 1-1 will be updated as Parcels transfer and will eventually include all Parcels depicted in Figure 1-2.

This RMP authorizes the Owner to perform certain Restricted Activities on the Site without further FFA Signatory approval, referred to as Restricted Activities Authorized with Conditions (see Section 2.1) provided that the Owner follows the environmental procedures and protocols set out in this RMP (see Sections 3 and 4). This RMP constitutes written approval from the FFA Signatories to perform Restricted Activities Authorized with Conditions for purposes of the CRUP and deed. To perform all other Restricted Activities, the Owner must obtain FFA Signatory approval through a Restricted Activities Work Plan or an Activity Specific Work Plan which may be based on this RMP and the procedures and protocols set forth herein. Owners are required to reimburse DTSC for its costs of oversight of Restricted Activities under Article III of the applicable CRUP as a cost associated with the administration of the CRUP.

In addition to this RMP, Owners of the Site must comply with all provisions of any CRUP applicable to the Parcel. The Site does not include, and this RMP is not required for, Parcel A or Parcel D-2 because those Parcels are not subject to land use or activity

restrictions. In addition, the Site does not include, and this RMP is not applicable to, the areas subject to radiological restrictions, which are currently anticipated to be Lot 2 of the Installation Restoration (IR) Site 7/18 on Parcel B, the shoreline area of Parcel E, and the majority of Parcel E-2 because a separate RMP or equivalent Restricted Activities Work Plan will be developed specifically for this type of land that has not received a radiological unrestricted release designation.

Although this RMP sets forth the requirements to appropriately manage the potential risks in soil and groundwater following remedy completion, the RMP is not intended to catalog all other legal requirements that may apply to the Site or to activities conducted under the RMP, including, but not limited to, worker health and safety as governed by the Occupational Safety and Health Administration (OSHA) and compliance with Article 31 of the San Francisco Health Code. Article 31 contains special permit processing requirements that apply to the Site.

Nothing in this RMP shall be construed to suggest that the Owner has a right of recovery against the Navy for the costs of replacement, repair, modification or disturbance of the remedies in place at the time of transfer or any remedies subsequently installed by the Owner to the extent that such costs result from an Owner's performance of activities authorized under this RMP or under a subsequent FFA Signatory-approved work plan, and that are not related to the investigation or remediation of unexpected conditions. By way of example, such costs may include the following, to the extent they result from the performance of activities authorized under this RMP and are not related to the investigation or remediation of unexpected conditions: costs of repair or replacement of Durable Covers or shoreline revetments; costs of excavation, treatment, and/or disposal of known contaminated soil; costs of repair, replacement, relocation, and abandonment of groundwater monitoring and extraction wells; costs of construction dewatering and related groundwater treatment; costs of installation of groundwater conduit management measures in utility trenches; costs to prevent groundwater intrusion through sealing; and costs of construction- and demolition-related soil sampling and analysis.

1.2 Intended Users of RMP

This RMP is intended for the following entities or their designees who may perform or oversee Restricted Activities within the Site:

- The OCII;

- Owners (see Appendix A Definitions);
- FFA Signatories;
- City and County of San Francisco (City) ~~Department of Public Health, (SFDPH),~~

The RMP will be used by Owners to ensure protection of the Navy's remedy and by the FFA Signatories and SFDPH to assist in ensuring that future Owners comply with the Restrictions in CRUPs and Deeds applicable to the Site.

Owners shall provide a copy of the RMP to any party with the right to perform subsurface work on the Site, which may include property management companies working on behalf of the Owner and future transferees. However, the Owner remains responsible for compliance with all aspects of the CRUP(s) and this RMP.

1.3 Regulatory Oversight

As defined in the FFA, the Navy is the lead federal agency for compliance with CERCLA, in consultation with the USEPA, DTSC, and RWQCB. A contact list for the FFA Signatories is included in Appendix B.

Regulatory oversight by the FFA Signatories regarding implementation of the RMP includes but is not limited to:

- Review and approval of modifications to the RMP, as described in Section 1.4.
- Performance of inspections to verify compliance with the RMP procedures and protocols.
- Review and approval of Work Plans to conduct Restricted Activities, as described in Section 2.2.2.
- Consultation and oversight of work involving unexpected conditions, as described in Section 3.8.

1.3.1 Compliance with Requirements of Public Agencies That Are Not Parties to the FFA

The RMP identifies certain environmental procedures and protocols that must be followed when carrying out Restricted Activities and the circumstances under which compliance with the RMP satisfies the requirement in an applicable Parcel-specific

CRUP to obtain FFA Signatory approval to engage in a Restricted Activity. In addition to compliance with the Restrictions and other requirements of the CRUP(s), other federal, state, and City permitting and environmental regulations and procedures apply to the Site. The following is a list of state and local agencies that may have requirements for certain construction and maintenance activities, in addition to any requirements described in this RMP and the CRUP(s). This list is an example of potential state and local regulatory agencies and is not intended to be complete or all-inclusive.

- Bay Area Air Quality Management District (BAAQMD) – air emissions and/or dust control for naturally occurring metals and naturally occurring asbestos (NOA), if applicable.
- Bay Conservation and Development Commission – approval of repairs or modifications to the revetment wall within 100 feet of the San Francisco Bay shoreline (as defined in Section 66610 of The McAteer-Petris Act).
- California Department of Fish and Wildlife – protection of endangered species.
- ~~SFDPH – monitoring well permitting, SFDPH Article 31 oversight, and SFDPH Article 22B.~~
- ~~City and County of San Francisco Public Utilities Commission (SFPUC) – wastewater discharge permitting.~~
- California Occupational Safety and Health (Cal/OSHA) – worker health and safety.
- ~~California Department of Fish and Wildlife – protection of endangered species.~~
- ~~City and County of San Francisco, Oversight Board for the OCH – design review, CP/HPS Phase II Project.~~
- City and County of San Francisco Department of Building Inspection – building permitting.
- City and County of San Francisco Department of Public Works – permitting of structures in existing or future public rights-of-way and parks; subdivision approvals.
- City and County of San Francisco Fire Marshall – approval of infrastructure related to Fire Department emergency response.

- City and County of San Francisco Municipal Transportation Agency – permitting of infrastructure related to transit and traffic management.
- City and County of San Francisco Public Utilities Commission (SFPUC) – wastewater discharge permitting.
- ~~City and County of San Francisco Fire Marshall – approval of infrastructure related to Fire Department emergency response.~~
- ~~City and County of San Francisco, OCII, Successor Agency to the Redevelopment Agency – the intended recipient of the Site.~~
- Commission on Community Investment and Infrastructure (CCII), the commission for OCII – design review, CP DevCo/HPS Phase II Project.
- RWQCB – CWA Section 401 Water Quality Certification.
- ~~US Fish and Wildlife Service – protection of endangered species.~~
- USSFDPH – monitoring well permitting, SFDPH Article 31 oversight, and SFDPH Article 22B.
- United States Army Corps of Engineers – approval of repairs or modifications to the revetment wall and storm drain outfalls below sea level.
- United States Fish and Wildlife Service – protection of endangered species.

1.4 **Modifications to the RMP**

The RMP is designed to be modified when a new Parcel to which the RMP will apply is transferred from the Navy to OCII. Appendix C, which contains Parcel-specific information, will be updated to reflect the current environmental Site conditions. Modifications to the RMP may also become necessary to address unanticipated future events, such as newly-identified chemicals of potential concern (COPCs) for which ~~site~~Site-specific Remediation Goals (RGs) have not been calculated, revisions to the Navy HPS soil gas action levels (SGALs) or RGs², or in the event of a remedy failure.

² Note that the Navy is required to undertake a formal review of the protectiveness of the remedy every five years under CERCLA § 121(c), which may include updates to RGs or SGALs.

Additionally, based on the progress of remedial activities, modification or termination of specific conditions or controls stated in this RMP may be warranted.

Upon receipt of a proposal to modify the RMP by ~~an~~ an Intended User other than the FFA Signatories (see Section 1.2), the FFA Signatories will review the proposed changes, request any additional background information if needed, and issue a decision regarding the proposal within 45 ~~calendar~~ days of receiving any additional requested information.

The CRUPs and deeds for parcels that contain volatile organic compound (VOC) areas requiring institutional controls (ARICs) or Land Use Restriction Areas authorize Owners to seek termination or modification of these restrictions from the FFA Signatories under conditions specified in those documents. Upon approval by the FFA Signatories of modifications to any areas subject to these restrictions, the RMP figures shall be concurrently updated, effective, and filed in the public repository (Section 1.5). It is the Owner's responsibility to take all actions required in the respective CRUP to effectuate such modifications should an Owner desire to seek such a modification.

The FFA Signatories may also propose modifications to the RMP based on new information that the RMP must address for the remedy to remain protective of human health and the environment. In the event the FFA Signatories propose an RMP modification, a draft of the proposed modification will be submitted to the SFDPH and Owners for review. The SFDPH and Owners shall review and provide comment on the proposed modifications within 60 calendar days of the submittal by the FFA Signatories. The FFA Signatories, SFDPH, and Owners will work collaboratively in good faith to develop modifications that are agreeable to all stakeholders.

The modified RMP will become effective immediately upon approval by the FFA Signatories and the modified RMP will be filed in the public repository (Section 1.5). If the proposed modifications are not agreed upon by the FFA Signatories, in consultation with the SFDPH, within 60 calendar days, the RMP shall continue in its original form until the FFA Signatories come to a consensus on the appropriate modifications and notify the SFDPH of the modifications. Changes in notification personnel are not considered a modification to the RMP and do not require FFA Signatory approval.

1.5 Public Repository of RMP

A copy of this RMP and any RMP modifications will be available at the HPS information repositories indicated below, and on the SFDPH Hunters Point Shipyard Redevelopment

website (<http://www.sfdph.org/dph/EH/HuntersPoint/default.asp>). The HPS information repositories also contain the documents discussed in Section 1 and referenced elsewhere in this RMP.

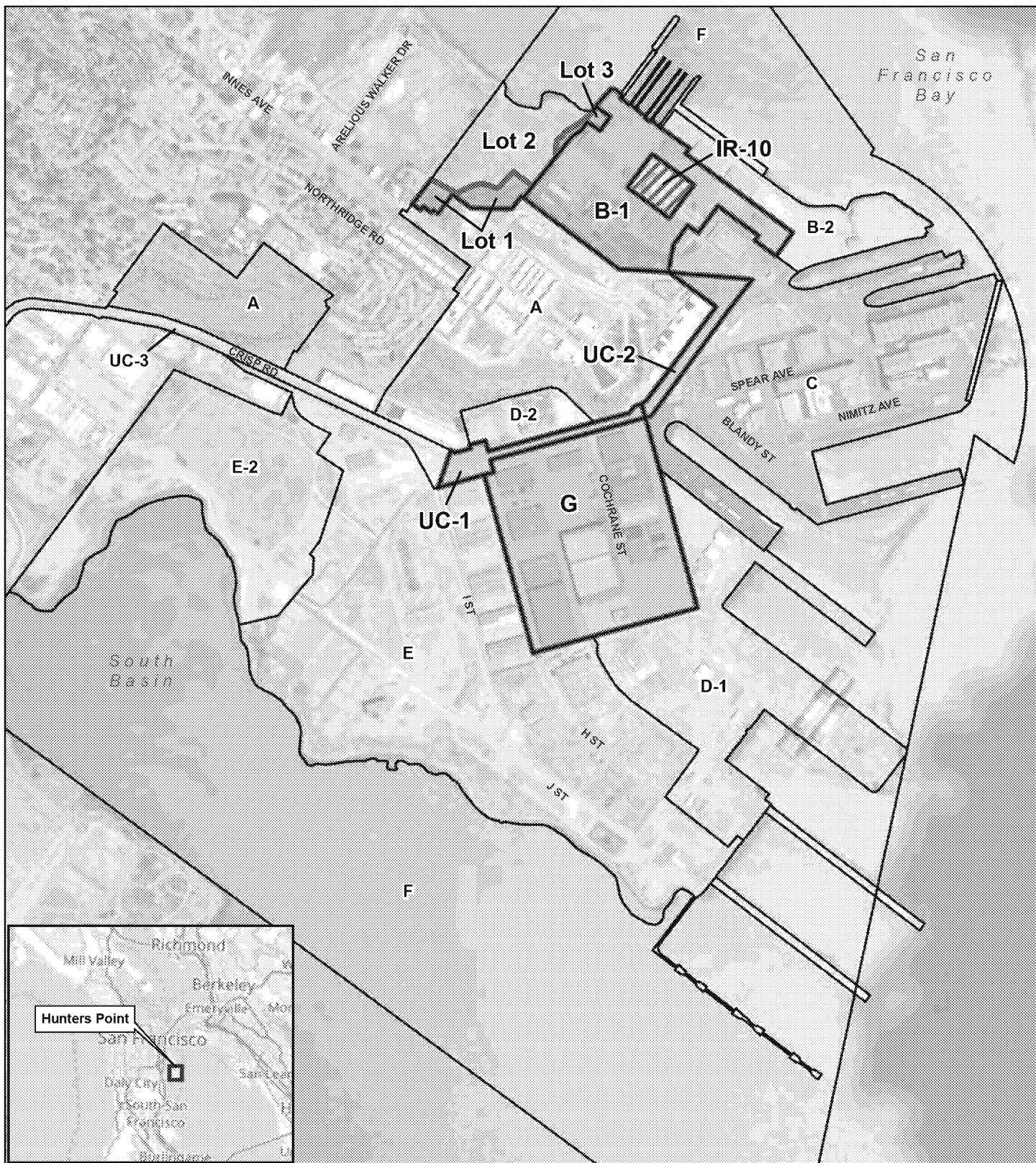
San Francisco Main Library
100 Larkin Street
Government Information Center, 5th Floor
San Francisco, California 94102
Phone: 415-557-4500

Bayview/Anna E. Waden Branch Library
5075 Third Street
San Francisco, California 94124
Phone: 415-355-5757




DTSC file room
700 Heinz Avenue
Berkeley, CA California 94710
Phone: 510-540-3800

Contact information for the FFA Signatories and the SFDPH is provided in Appendix B. Changes in contact information will be submitted to the SFDPH, which will be responsible for including the updated information on their SFDPH HPS Redevelopment website.

FIGURE 1-1



Legend

-  Site Boundary
-  IR-10 (see note)
-  Navy Parcel Boundary

Note:
The IR-10 area is not included in this RMP.

0 1,000 Feet



Site Boundary

Risk Management Plan
Hunters Point Shipyard, San Francisco, CA

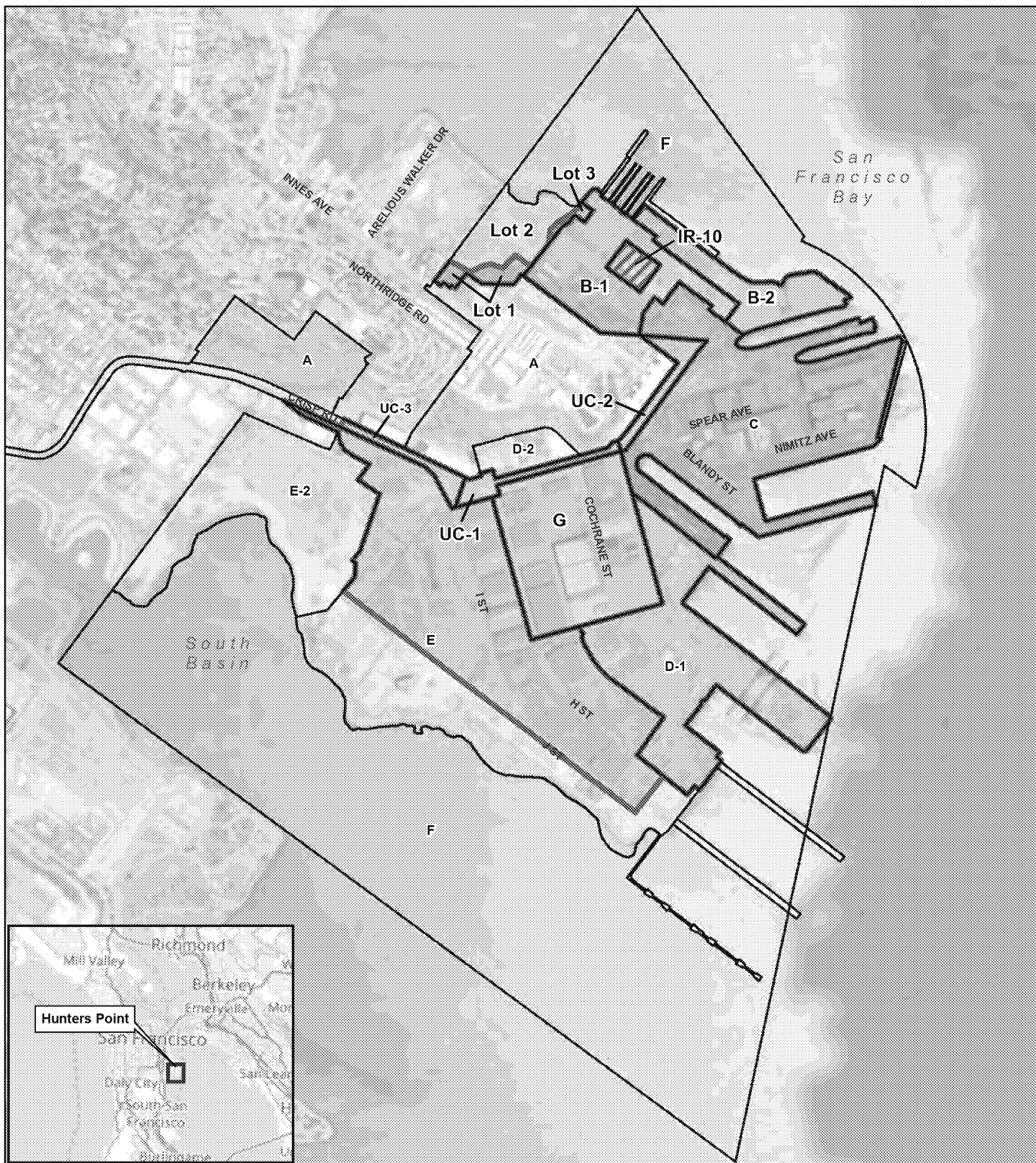
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Figure
1-1




WR1247A

August 2017

FIGURE 1-2



Legend

-  Future Site Boundary
-  IR-10
-  Navy Parcel Boundary



0 1,250 Feet

Future Site Boundary

Risk Management Plan
Hunters Point Shipyard, San Francisco, CA

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Figure
1-2

WR1247A

August 2017

2. RESTRICTED ACTIVITIES AUTHORIZED WITH CONDITIONS AND REPORTING AND NOTIFICATION PROTOCOLS

The Restricted Activities that are allowed without additional FFA Signatory approval, as long as they are performed in compliance with this RMP, are designated in this RMP as “Restricted Activities Authorized with Conditions” (Section 2.1). The Restricted Activities Authorized with Conditions do not modify any Restrictions in the CRUP for the Parcel.

2.1 Restricted Activities Authorized with Conditions

This RMP authorizes the Owner to perform Restricted Activities Authorized with Conditions, provided that the Owner follows the environmental procedures, protocols, and reporting requirements set out in this RMP (see Sections 2.2, 3, and 4). The Restricted Activities Authorized with Conditions are:

- Any activity occurring on land that is less than ~~one~~(1) acre in size (contiguous area) and involves movement of soil to the surface from below the surface of the land, or penetrates the Durable Cover, including, but not limited to, excavation, grading, or other movement of soil.
- Excavation of soil from one location and placement at any other location on the Site so long as it is placed beneath an FFA Signatory approved Durable Cover (e.g., 2 feet of clean fill, asphalt cover, sidewalk, street, building foundation, etc.), as described further in Sections 3.3 and 3.4, subject to the limitations described in Section 4.2.
- After dedication and acceptance of public rights-of-way by the City, excavation in the public rights-of-way for purpose of installing, repairing, and maintaining the public rights-of-way, utilities, and surface/subsurface facilities that are connected to the utilities and related appurtenances.
- Demolition or removal of “hardscape” (e.g., concrete or asphalt roadways, parking lots, building foundations, sidewalks, etc.) for a contiguous area less than ~~one~~(1) acre in size. Following completion of hardscape removal, an FFA Signatory-approved Durable Cover must be re-installed, as described in Section 3.3. Recognizing that development construction will be phased over a period of many years, the FFA Signatories require that a Durable Cover, or interim Durable

Cover, be restored over a development site within five years of removal of the previously existing Durable Cover.

- Vertical Development in an area of the Site in which Horizontal Development has been completed, and in which the Horizontal Development Completion Report, as approved by the FFA Signatories, specifies that a separate Restricted Activities Work Plan for Vertical Development is not required.

Some specific examples of Restricted Activities Authorized with Conditions that can occur on sites of ~~one~~1 acre or less include, but are not limited to:

- Excavation of trenches, potholes, or other movement of soil from the subsurface to the surface in support of the installation of new below grade utilities, foundations, or other foundational structures (e.g., sewer lines, water lines, storm water pump station wet wells, pile caps and/or grade beams, fences, etc.).
- Demolition of existing below-grade, at-grade, or above-grade structures.
- Grading for the purpose of raising and/or lowering site grade, creation of building pads, fine grading activities in support of road installation, and associated excavating, loading, hauling, stockpiling and/or compacting soil.
- Pre-drilling for pile installation, including drilling pilot holes through fill material prior to the installation of foundation piles.
- Vertical Development, including construction of facilities, structures, appurtenances, and associated excavation, fine grading, and subsurface utilities. Vertical Development can occur on areas greater than ~~one~~1 acre if authorized by the Completion Report prepared for the Horizontal Development of the area and approved by the FFA Signatories in accordance with Section 2.2.2.

The Owner must prepare a Restricted Activities Work Plan and obtain FFA Signatory approval as described in Section 2.2.2 to engage in any Restricted Activity other than those activities specifically enumerated above as Restricted Activities Authorized with Conditions. ~~Note that even~~Even when performing Restricted Activities Authorized with Conditions, RMP protocols that address unexpected conditions (Section 3.8) or soil vapor intrusion concerns (Section 4.4 and its subsections) may include the need to confer with the FFA Signatories and/or obtain approval of an Activity Specific Work Plan as described in Section 2.2.3.

2.2 **Reporting and Notice Protocols**

This section describes reporting and notification protocols that apply when the following circumstances arise:

- Annual Reporting of Restricted Activities Authorized with Conditions (see Section 2.2.1).
- Preparation of a Restricted Activities Work Plan requiring FFA Signatory approval (see Section 2.2.2).
- Preparation of an Activity Specific Work Plan requiring FFA Signatory approval (see Section 2.2.3).
- Discovery of unexpected environmental condition(s) (see Section 3.8).

Notifications are the responsibility of the Owners. The relevant time periods for notifications and associated responsible entities are described below. Government entities with oversight responsibilities for certain aspects of the RMP but that are not one of the FFA Signatories are presented in Table 2-1.

2.2.1 **Annual Reporting for Restricted Activities Authorized with Conditions**

Any Owner that performs Restricted Activities Authorized with Conditions must submit an Annual Report to the FFA Signatories that accounts for the Restricted Activities Authorized with Conditions that occurred during the reporting period. Restricted Activities Authorized with Conditions are listed in Section 2.1. Appendix D includes the Annual Report form that shall be used by the Owner to report on the Restricted Activities Authorized with Conditions (Section 2.1) and risk management measures implemented during Restricted Activities (Sections 3 and 4) that have been conducted over the previous year. The Owner's submittal of the forms in Appendix D, with any additional explanation as required, will comply with the annual reporting obligations of this RMP. The form provided in Appendix D must be completed and submitted to FFA ~~signatories~~ Signatories to comply with the reporting obligations of this RMP. The Annual Report shall be submitted on or before March 30 of each year and will report on activities that occurred during the previous calendar year.

2.2.2 **Obtaining Approval for Restricted Activities Which Require FFA Signatory Approval**

Prior to conducting Restricted Activities that are not "**Restricted Activities Authorized with Conditions**"^{23, 24} the Owner must submit a Restricted Activities Work Plan to the FFA

Signatories at least ~~ninety~~(90) calendar days prior to the date the Owner wishes to commence the Restricted Activities.

The Restricted Activities Work Plan shall detail the specific activities to be conducted and the controls to be implemented to ensure safety and to protect and restore the integrity of the remedy. The FFA Signatories shall review and either approve or provide comments within ~~forty-five~~(45) calendar days of receipt of the Restricted Activities Work Plan.³ The Owner and FFA Signatories will resolve comments through written responses and in-person meetings as appropriate. The Owner shall obtain written approval of Restricted Activities Work Plans from the FFA Signatories prior to commencement of field activities. Following completion of the Restricted Activities approved in the Restricted Activities Work Plan, the affected portions of the remedy will be restored as described in Sections 3 and 4 of the RMP.

All Restricted Activities Work Plans submitted for FFA Signatory approval shall, at a minimum, include the following elements:

- Description of current site conditions;
- Description of all proposed work subject to the Restricted Activities Work Plan, including (as applicable) Horizontal Development to be conducted by Owner and Vertical Development to be conducted by Owner or subsequent Owners;
- Appropriate exhibits and illustrations;
- An implementation schedule, including a submittal date for the Completion Report;
- A description of the protocol that will be implemented to protect and restore the integrity of the remedy during and following completion of the work, including:
 - Implementation of RMP plans and protocols and any site-specific plans and protocols prepared for the work;
 - Reporting on completion of milestones and various stages of work and remedy restoration; and
 - Certifications by a Registered Professional on remedy integrity restoration.

³ As provided in the ~~Federal Facilities Agreement~~FFA, an extension for review and comment will be granted to the FFA Signatories if requested within the 45-day review period.

Following completion of the work approved in the Restricted Activities Work Plan, the Owner shall prepare and submit a Completion Report to the FFA Signatories and the SFDPH for review and approval. The Completion Report shall, at a minimum, include the following elements:

- A description of the work completed;
- A description of the final condition of the Site, including the configuration of the final Durable Cover;
- A detailed description and as-built drawings of any remedy or mitigation components installed;
- An accounting of the soil and groundwater management activities, including soil and groundwater hauled offsite for disposal and soil imported for filling; ~~and~~
- Records and documentation such as hazardous waste manifests, soil import evaluation reports, National Pollutant Discharge Elimination System (NPDES) discharge reports, dust and asbestos monitoring documentation, analytical laboratory reports etc.; ~~and~~
- A modified O&M Plan to include updated O&M provisions necessitated by the work. Amendments and/or modifications to the O&M Plan will ~~assure~~ensure that any necessary monitoring is conducted and/or engineering controls continue to operate in a protective manner.

The Completion Report may also specify that, upon approval of the Completion Report by the FFA Signatories, a separate Restricted Activities Work Plan for Vertical Development is not required in designated areas, subject to any site-specific requirements or protocols that are necessary to implement based on the environmental condition of the Site and its configuration following the work that has been performed. Such site-specific protocols or requirements may include but are not limited to assessment of groundwater and soil vapor intrusion data beyond what is required in ~~Section 3.6~~Sections 4.3 and 4.4 of the RMP.

2.2.3 Activity Specific Work Plan

When conducting Restricted Activities in areas with certain environmental conditions, ~~which are identified in Sections 3 and 4,~~ FFA Signatory notification and approval is required. Prior to conducting specified work in such conditions, the Owner must prepare an Activity Specific Work Plan for FFA Signatory review and approval, the substance and scope of which are provided in Sections 3.6 and 4. Examples of Activity Specific Work Plans include Groundwater Management Plans (Section 4.3.4~~2~~), soil vapor

mitigation plans (Section 4.4.1), utility conduit mitigation plans (Sections 4.3.2 and 4.1 through 4.4.3), and groundwater monitoring well relocation plans (Section 3.6.1-2). In addition, Owner must prepare an Activity Specific Work Plan for requests to modify a volatile organic compound (VOC) Area Requiring Institutional Controls (ARIC) or Land Use Restriction Areas (per applicable CRUP), or any combination of the above. Activity Specific Work Plans shall be prepared and signed by a registered professional engineer or geologist, as appropriate to the work that is contemplated.

2.2.4 Notification Requirements for Discovery of Unexpected Conditions

Unexpected conditions are defined in Section 3.8 and Appendix E. In the event that unexpected conditions are encountered in the field, the Owner shall comply with all requirements described in Section 3.8 and the Unexpected Condition Response Plan (UCRP, Appendix E), which include notification requirements. Additionally, unexpected conditions must be reported in the Annual Report Form provided in Appendix D.

TABLE 2-1

**TABLE 2-1
GOVERNMENT ENTITIES WITH INDEPENDENT
RISK MANAGEMENT PLAN OVERSIGHT RESPONSIBILITIES**

RMP Element	Responsible Oversight Agency	Additional Comments
Construction Worker Health and Safety	California Occupational Health and Safety Administration (Cal/OSHA) <u>Cal/OSHA</u>	Subject to OSHA 1910.120
Dust Control	San Francisco Department of Public Health (SFPDH) <u>SFPDH</u>	Subject to the requirements of Article 31 of the Health Code
Asbestos Dust Mitigation Plans	Bay Area Air Quality Management District (BAAQMD) <u>BAAQMD</u>	Subject to the Asbestos <u>California Air Resources Board Airborne Toxic Control Measures (ATCM)</u> for Construction, Grading, Quarrying, and Surface Mining.
Storm Water and Groundwater Management	Regional Water Quality Control Board <u>RWQCB</u>	Subject to the storm water <u>Storm Water</u> General Permit.
Groundwater Discharges to Sanitary Sewer	San Francisco Public Utilities Commission (SFPUC) <u>SFPUC</u>	Subject to the SFPUC Batch Wastewater Discharge Permit.
Permits to engage in subsurface work	SFDBI <u>San Francisco Department of Building Inspection</u> or San Francisco Department of Public Works (SFDPW)	Subject to the requirements of Article 31 of the Health Code

3. RISK MANAGEMENT PROTOCOLS REQUIRED FOR ALL RESTRICTED ACTIVITIES

The purpose of this section is to describe the protocols that will be implemented throughout the Site during the performance of Restricted Activities to maintain the integrity of the remedy and to control potential impacts to human health and the environment associated with potential exposure to chemicals of concern (COCs) that might be present in soil, soil vapor, and/or groundwater. In addition, unique environmental conditions have been identified in specific geographic areas of the Site, which are subject to risk management protocols beyond those described in this Section 3. These environmental conditions and their locations are described for each Parcel in Appendix C. The risk management protocols applicable to work in these locations are described in Section 4.

~~It should be noted that agency~~ Agency guidance documents referenced herein may be updated ~~from time to time~~ occasionally, and the Owner is responsible for consulting the most updated version.

3.1 Construction Worker Health and Safety

Construction contractors, maintenance contractors, and utility contractors whose workers may contact potentially contaminated soil, soil vapor, or groundwater within the Site, are required to prepare site-specific Environmental Health and Safety Plans (EHSPs) under the direction of a Certified Industrial Hygienist (CIH) and in a manner consistent with applicable occupational health and safety standards, including, but not limited to, OSHA 1910.120. The contractor-specific EHSPs will be maintained by the contractor at the Site. Nothing in this section is intended to relieve any person, including contractors or employers, of other mandated worker health and safety planning and training requirements under any federal, state, or local statute or regulations.

It is the responsibility of the contractor preparing their EHSP to review information available in the HPS information repositories (see Section 1.5) regarding ~~site~~ Site conditions and associated potential health and safety concerns (see Appendix C for each Parcel). It is also the responsibility of the contractor or other person preparing an EHSP to verify that the components of the EHSP are consistent with applicable Cal/OSHA occupational health and safety standards and currently available toxicological information for potential COCs at the work site. Contractor compliance with the RMP obligations will be specified in the contract documentation for the contractors performing

subsurface work. Each contractor must require its employees who may directly contact potentially contaminated soil or groundwater to perform all activities in accordance with the contractor's EHSP. Each construction contractor will ~~assure~~ensure that its onsite construction workers will have the appropriate level of health and safety training, site-specific training, and will use the appropriate level of personal protective equipment (PPE) as determined in the relevant EHSP based upon the evaluated job hazards and monitoring results. An example EHSP outline is included in Appendix F.

3.2 Access Control

Access to the site during Restricted Activities will be limited to authorized personnel in compliance with EHSP requirements (Sections 3.1 and 4.1). The potential for trespassers or visitors to gain access to construction areas and come into direct contact with potentially contaminated soil or groundwater will be controlled through the implementation of the following access and perimeter security measures:

- Except in streets, security fencing will be placed around any Site without an FFA Signatory approved Durable Cover or where the Durable Cover has been disturbed to prevent pedestrian/vehicular entry except at controlled (gated) points. Gates will be closed and locked during non-construction hours. Fencing will consist of a 6-foot chain link or equivalent fence unless particular safety considerations warrant the use of a higher fence. The appropriate means of access control during routine maintenance activities in small areas will be determined in the EHSP.
- In streets, use a combination of K-rails or similar barriers and fences with locked gates.
- Post "No Trespassing" signs every 200 feet.
- Post signs every 200 feet warning that the area within the fenced areas may contain chemicals that may be harmful to human health.
- "No Trespassing" and warning signs should be in multiple languages commonly spoken in the local community and should include a phone contact.

Implementation of appropriate site-specific measures as outlined above will reduce the potential for trespassers or visitors to gain access to construction areas and to come into direct contact with soil or groundwater.

3.3 Durable Cover Protocols: Hardscape and Landscaped Areas

This ~~Section~~ section presents protocols to be followed when temporarily removing and then replacing the Durable Cover during Restricted Activities. At the time of Site transfer, the Navy will have established Durable Covers of several types. Existing concrete building foundations, asphalt, and concrete covers (e.g., existing roads and paved parking areas) will comprise a significant portion of these Durable Covers. Remaining areas will have a minimum of ~~two (2)~~ feet of clean fill installed, which will serve as the soil Durable Cover.

~~On occasion routine property~~ Property maintenance work may be necessary for landscaped areas (e.g., irrigation installation or repair) within the soil Durable Cover. ~~If (i.e., the routine property maintenance work (e.g., major subgrade utility repairs, major building foundation modifications, etc.) requires the complete removal~~ top 2 feet of the soil Durable Cover or the temporary removal and replacement such that the underlying soil becomes exposed, then the protocol presented clean fill) may be necessary in this Section must be followed and documented in the Annual Report (Section 2.2.1) landscaped areas. When digging in landscaped areas, if earthwork penetrates below the soil Durable Cover, workers will segregate any removed soil Durable Cover material from any removed HPS Bay Fill/Native Soil (or else, will treat all removed material as HPS Bay Fill/Native Soil). Any removed HPS Bay Fill/Native Soil will be placed on a plastic barrier to prevent contamination of the ~~underlying material (HPS Bay fill and Native Soil may be combined as the two will probably be indistinguishable).~~ Durable Cover on which it is temporarily placed.

If any work requires the complete removal of the soil Durable Cover or the temporary removal and replacement such that the HPS Bay Fill/Native Soil soil becomes exposed, then the protocol presented in this Section must be followed and documented in the Annual Report (Section 2.2.1). Disturbance of the soil Durable Cover must follow the RMP requirements including the Dust Control Plan (DCP) and, if applicable, the Soil Import Plan (SIP). The DCP is included in Appendix G and the SIP outline is included in Appendix H. In addition, the construction Storm Water Pollution Prevention Plan (SWPPP) must address potential for run-off from the exposed soil while the Durable Cover is removed (see Section 3.5). When routine maintenance is complete, workers must document that the soil Durable Cover was replaced with either the clean segregated soil or with ~~two (2)~~ feet of imported clean soil that meets SIP requirements for a soil Durable Cover. The Durable Cover is to be replaced within ~~ten (10) business~~ 14 calendar days of

the completed routine maintenance work. Annual Report documentation is to include photographs of the work, measured Durable Cover thickness, elevation survey, and a statement signed by the person(s) performing the maintenance activities that the work was completed as per this Durable Cover Protocol; this documentation will be attached to the RMP annual report form (see Appendix D).

3.4 Soil Management

This section describes the movement and management of soil, including moving and stockpiling soil onsite, dust control, offsite disposal, and importation.

3.4.1 Soil Movement

Except as otherwise provided below, HPS Bayfill ~~and~~/Native Soil within the boundaries of the Site may be moved within the Site and soil from Parcels A and D-2 may be moved from Parcels A and D-2 onto the Site without prior FFA ~~signatory~~Signatory approval or the need for sampling, if and only if such soil will be placed underneath the Durable Cover. In the event that placement of soil underneath the Durable Cover is not accomplished immediately upon its removal, such soil is to be stockpiled within the Site, with adequate protection, as further described in Section 3.4.2, or removed from the Site for offsite disposal, as described in Section 3.4.4.

This authorization to relocate soil within the Site does not apply to HPS Bay Fill ~~and~~/Native Soil excavated in Land Use Restriction Areas ~~or in VOC ARICs~~, which are described as applicable for each Parcel in Appendix C. ~~As further discussed in Section~~Sections 4.2.3 and 4.4.1, soil excavated from Land Use Restriction Areas ~~and VOC ARICs~~ may not be moved to a location within the Site outside of a Land Use Restriction Area ~~or a VOC ARIC~~ without prior FFA ~~signatory~~Signatory approval.

3.4.2 Soil Stockpile Management

Stockpiling of excavated HPS Bay Fill ~~and/or~~/Native Soil may be necessary on a temporary basis to support the logistical phasing of the redevelopment activities. Whenever possible, soil stockpiles will be located in close proximity to the work area or the ultimate disposition area as practicable within the Site. Stockpiles will be labeled as to the nature of soil contained in the stockpile (e.g., durable cover soil, general fill soil, HPS Bay Fill ~~soil~~/Native Soil, land use ~~restreicted~~restricted soil, etc.). Occasionally, it may be necessary to place soil stockpiles temporarily outside the Site. When such

occasion occurs, the Owner will request permission from the Navy to place soil stockpiles in areas that are still owned by the Navy.

Management of stockpiles containing hazardous substances and/or petroleum substances will include Site access control, storm water runoff control, and dust control requirements identified in this RMP. Soil stockpiles that contain such substances will be placed on a physical barrier that prevents the contamination of the ~~underlying soil.~~ Durable Cover on which they are placed. Examples of a physical barrier are a plastic membrane, concrete surface, or asphalt surface.

Access control to soil stockpiles will be accomplished as outlined in Section 3.2 of this RMP. Storm water runoff requirements will be specified in a project-specific SWPPP as identified in Section 3.5 of this RMP. The project-specific SWPPP will be generated for each project involving earth disturbing activity and is incorporated herein by reference. The DCP that will apply to all work is summarized below and is summarized in Section 3.4.23.

Stockpiles will be under control of the Owner at all times and inspected/monitored as specified in the SWPPP and DCP to ensure access control, dust control, and runoff control measures are functioning adequately. At a minimum, stockpiles will be monitored by the contractor weekly to verify that the various controls are in place and functioning as intended.

3.4.3 Dust Control

Dust control protocols are specified in the DCP, which is included in Appendix G. The DCP identifies the measures that will be taken to reduce particulate emissions during demolition of existing structures, grading, soil handling and stockpiling, vehicle loading, utility work, truck traffic, and construction of ~~site~~ Site infrastructure. The DCP has been prepared in accordance with the requirements in Article 31 of the San Francisco Health Code and certain BAAQMD regulations often applicable to redevelopment activities. Exposure of onsite construction workers to dust containing COCs will be minimized, and generation of nuisance dust will also be minimized to comply with Article 22B of the San Francisco Health Code.

NOA has been found in the serpentine bedrock and fill soil throughout the HPS area. Large construction projects occurring within these areas are subject to the California Air Resources Board ~~Airborne Toxic Control Measures (ATCM).~~ For projects where soil

containing NOA will be disturbed in an area of one acre or larger (as defined in the ATCM), an Asbestos Dust Mitigation Plan (ADMP) will be submitted to and approved by the BAAQMD, as required. For projects less than one acre or for projects greater than one acre but for which no asbestos data exist, an evaluation will be performed to determine whether an ATCM-compliant ADMP is required prior to initiation of potential dust generating activities.

3.4.4 Offsite Disposal of Soil and Wastes

Soil excavations will be required during construction of utility trenches, building foundations, and other facilities. It is likely that excavated soil will be reused within the Site for grading activities. As a result, offsite soil disposal should be limited. Any offsite soil disposal is subject to all applicable federal and state laws and regulations. All activities associated with waste disposal, such as truck loading, truck traffic, and decontamination of trucks leaving the facility will be performed in accordance with the DCP provided in Appendix G and any other applicable federal or state law or regulation.

The Owner or Owner's agent is responsible for characterization of any waste prior to transportation and offsite disposal. Characterization for disposal shall be in accordance with the requirements of Title 22 of the California Code of Regulations (CCR), Division 4.5, Chapter 11, and the requirements of the disposal facility and any other applicable law. Labeling requirements for transportation of waste shall additionally be in accordance with Title 29 of the Code of Federal Regulations, Parts 172 and 173, Title 22 CCR, Division 4.5, Chapter 12, and any other applicable law.

All soil to be disposed of will be taken only to a certified and permitted California landfill or an equivalent out-of-state landfill, as appropriate and as determined by the waste profile.

3.4.5 Soil Import Controls and Acceptance

All soil imported from areas outside HPS will be subject to sampling and soil quality controls established in a SIP as required by Article 31 of the San Francisco Health Code. A SIP outline is included in Appendix H. A SIP for HPS shall be prepared as a separate document and will be consistent with the most current revision of DTSC's October 2001 Clean Imported Fill Material Information Advisory. Soil import acceptance criteria will meet the most stringent of the most recent revision of the USEPA Regional Screening Levels (RSLs; USEPA, 2015a), the California RWQCB Environmental Screening Levels

(ESLs; RWQCB, 2013k), or the DTSC soil screening levels that are applicable at the time work is being conducted. For total petroleum hydrocarbons (TPH), the soil import criteria will meet the most recent Tier 1 ESL for TPH as gasoline, diesel, and motor oil, respectively. Soil with COC concentrations that are equal to or below their respective RSL or Tier 1 ESL is approved for import and will be suitable for use as a Durable Cover.

3.5 Storm Water Management

A construction SWPPP will be required prior to the start of construction activities. The SWPPP will provide the framework for contractors performing work at the Site. The Construction SWPPP must conform to the requirements of the California State Water Resource Control Board (SWRCB) NPDES General Permit No. CAS00002, Waste Discharge Requirements (WDRs) for Discharges of Stormwater Runoff Associated with Construction and Land Disturbance Activities, and the City MS4 permit. As required, a Notice of Intent (NOI) shall be filed with SWRCB prior to commencement of regulated construction work. Compliance with the SWPPP will be maintained throughout the duration of the construction work. The SWPPP will be prepared by a Qualified SWPPP Developer (QSD) per Section VII of the 2009-0009-DWQ Permit:

(http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/construction.shtml).

3.6 Groundwater Monitoring Wells

Monitoring wells associated with the ~~basewide groundwater monitoring programs~~ Navy's Basewide Groundwater Monitoring Program (BGMP) are present within HPS, and additional wells associated with the Navy remedial activity monitoring may be installed.

It is a requirement of the CRUP that the integrity of and access to the monitoring well network by the Navy be maintained during Site development activities. Only the FFA ~~signatories~~ Signatories can decide that a well that was installed as a part of the groundwater remedy is no longer needed ~~or must be relocated.~~ FFA Signatories must approve relocation of any monitoring well that must be relocated as part of redevelopment or site maintenance activities. Prior to the initiation of any demolition or earth-disturbing activities, the presence of groundwater monitoring wells within the active work area will be identified and physically marked in the field. A location map and survey coordinates for each monitoring well can be found in the HPS information repositories (Section 1.5)

and on the SFDPH HPS Redevelopment website. Current active monitoring wells located on the Site known as of the date of this RMP are presented in Appendix C figures.

For any active groundwater monitoring wells within the active work area, every effort must be taken to protect the well and work must occur in a manner so as not to damage or compromise the well integrity. The contractor shall use appropriate means and methods to demarcate the location of the well and to establish protective barriers (e.g., steel or concrete bollards surrounding the well; steel plates placed on top of the well, etc.) to prevent the well from becoming damaged as a result of the work. At the conclusion of work, all monitoring wells within the work area will be inspected to confirm that no damage has occurred. The final condition of the wells will be documented in the completion report(s), as applicable.

If an existing groundwater monitoring well cannot be preserved during earth disturbing activities, the Registered Professional shall prepare an Activity Specific Work Plan, for FFA ~~signatory~~Signatory review and approval prior to the commencement of any Restricted Activity, that documents the proposed plan for abandonment of, repair of unintentional damage to, or replacement of groundwater monitoring wells. Any well that is part of a remedial action that is damaged or abandoned during construction must be repaired or replaced within ~~sixty (60)~~ calendar days unless the FFA ~~signatories~~Signatories grant an extension.

The Owner is also responsible for providing access for the FFA ~~signatories~~Signatories to the monitoring wells for the purposes of sampling and maintenance. Regulatory approval must be obtained prior to any action that will bar access to a monitoring well for a period of greater than seven ~~(7)~~ calendar days.

3.6.1 Abandonment of Existing Monitoring Wells

The existing well will be abandoned in accordance with the approved Activity Specific Work Plan and applicable State and SFDPH regulations. The Owner is responsible for obtaining all appropriate well abandonment permits and approvals. Well abandonment field activities will be documented to demonstrate compliance with permit conditions.

Following abandonment of groundwater monitoring wells, a completion report will be prepared by a Registered Professional describing the abandonment procedures and submitted to the FFA Signatories. The report will include:

- The well location;
- Photographic documentation of the abandonment;
- A description of the well destruction activities, including rationale for abandonment;
- All associated permits and waste disposal manifests, if necessary; and
- Department of Water Resources (DWR) well completion and abandonment reports.

3.6.2 Replacement of Monitoring Wells

Any required replacements of abandoned monitoring wells, which are part of an ongoing groundwater monitoring network, will be re-installed within ~~sixty~~ (60) calendar days of the prior well's abandonment date unless the FFA Signatories grant an extension.

Replacement wells will be located as close as possible and constructed in the same manner as the original well, and will monitor, to the extent possible, the same groundwater zone as the original well. An analysis shall be conducted by a Registered Professional to demonstrate that the location of the proposed replacement well is representative of the same groundwater conditions as the existing well to be replaced. The analysis may draw on several lines of evidence, including ~~(, but not limited to)~~, hydrogeologic conditions of the area, groundwater elevation contours, groundwater quality of the existing and nearby wells, and objectives of the remedial performance monitoring at that well location. The analysis shall be documented in the Activity Specific Work Plan and will be subject to the review and approval of the FFA Signatories. The Owner is responsible for obtaining all appropriate permits and approvals, and providing notification to the Navy. It will be the responsibility of the Navy to update the ~~Basewide Groundwater Monitoring Plan~~ BGMP in response to changes in monitoring well location.

Prior to the replacement of an abandoned well, an Activity Specific Work Plan, prepared by a Registered Professional, will be submitted to the FFA Signatories. The Activity Specific Work Plan will include soil management protocols, sampling and analysis requirements for waste profiling, monitoring procedures, health and safety requirements, the boring log of the original well (obtained from the HPS information repositories),

proposed well construction details, and will describe procedures to be followed during installation of the replacement well. The location of the replacement well must be approved by the FFA Signatories.

Following installation of the replacement well(s), a monitoring well installation completion report will be submitted to the FFA Signatories. The report will include, among other things:

- Survey coordinates of the new well location;
- Identification of driller and drilling procedures;
- DWR Well Completion Report;
- Decontamination procedures;
- Well installation procedures;
- Lithologic log;
- Well development procedures;
- Horizontal location coordinates and vertical elevation of top of casing;
- Well completion details (depth, screen interval, materials used, surface completion, etc.);
- Initial water level measurement;
- Well sampling, if necessary;
- Permitting information; and,
- Disposition of installation-derived wastes.

The report shall be signed by a Registered Professional.

3.7 Protection of Shoreline Improvements

Construction and maintenance activities in shoreline areas may include maintenance or improvements to revetment walls, rip rap, sheet piles, quay walls, or bulkheads at the bay margin. Work performed in these areas will be required to conform to the Durable Cover and/or revetment walls designs described in the Remedial Design (RD) Package reports and the Remedial Action Work Plan (RAWP). All appropriate Navy documents (e.g.,

Operation and Maintenance Plans) must be consulted and the FFA Signatories notified no later than ~~ten~~ 14 calendar days prior to conducting work within 100 feet of the shoreline to determine the applicable requirements.

3.8 Unexpected Conditions

An ~~Unexpected Condition~~ unexpected condition is a condition observed in the soil, soil vapor, and/or groundwater that indicates the potential for Hazardous Substances and/or petroleum hydrocarbons to exist beneath the Site at a location that has not previously been identified, characterized, or remediated by the Navy.⁴ By way of example, unexpected conditions may include visibly discolored soil, soil exhibiting a chemical odor, the presence of an oily sheen or separate-phase petroleum product in the soil or groundwater, unexpected subsurface structures, radioactive materials, buried munitions or munitions constituents, or other visual or olfactory evidence of a historical release not previously identified. If in the course of evaluating the ~~Unexpected Condition~~ unexpected condition, the soil exhibits a total TPH concentration equal or greater than the Navy's petroleum Source Criterion for soil (3,500 milligrams per kilogram (~~[mg/kg]~~ total) TPH; Shaw Environmental, Inc. [Shaw], 2007), the soil will be managed as if it contains separate-phase petroleum product.

The potential exists for encountering unexpected or unknown subsurface conditions within the Site during development construction. As part of the site-specific health and safety training that will be required of grading contractors and site construction workers, instruction will be given on how to identify and respond to potential unexpected conditions. In addition to visual and olfactory cues, safety training exercises will provide workers with examples of site-specific radioactive materials, munitions, or other regulated objects that may be encountered during grading activities (e.g., underground storage tanks, sumps, pits).

The UCRP (Appendix E) identifies how unexpected contamination shall be addressed in consultation with the SFDPH and FFA Signatories. Upon discovery of a potential unexpected condition, the Owner shall conduct an initial assessment to identify the nature of the condition. The initial preliminary assessment will be made in accordance with

⁴ The figures in Appendix C describe and depict the locations of many known environmental conditions for each Parcel; these are not unexpected conditions, by definition. Section 4 describes the protocols addressing these conditions.

Section 1 of the UCRP. The nature of the condition will be described as one of the two categories of conditions, as follows:

- **Category 1 Condition:** A Category 1 Condition could pose an immediate hazard to construction workers and warrants a timely and coordinated response between the developer, SFDPH, and the FFA Signatories. By way of example, Category 1 Conditions include radioactive materials and material potentially presenting an explosive hazard (MPPEH).
- **Category 2 Condition:** A Category 2 Condition is less likely to represent an immediate hazard to construction workers and warrants a response through the SFDPH and the FFA Signatories. By way of example, Category 2 Conditions include visual and/or olfactory evidence of hazardous substances and/or petroleum constituents in soil, soil gasvapor, and/or groundwater.

If the condition is determined to be a Category 1 Condition, the Owner will stop work, secure the area, notify the SFDPH and FFA Signatories within 24 hours of designating a Category 1 Condition, and consult with FFA ~~signatories~~Signatories to determine the appropriate response action. In the case of radioactive materials, the Owner will consult with SFDPH and FFA ~~signatories~~Signatories to determine the appropriate response and may request the Navy to take appropriate action. In the case of MPPEH, the Owner will consult with SFDPH and FFA ~~signatories~~Signatories to determine the appropriate response, and in the case of suspected unexploded ordnance, notify the San Francisco Police Department Bomb Squad to take appropriate action. In either case, the FFA Signatories and the SFDPH may require that a response plan be submitted for review and approval prior to initiating the action.

If the condition is a Category 2 Condition, the Owner will temporarily suspend work and notify the SFDPH and FFA Signatories of the condition. In making the notification, the Owner will provide any information that it may have regarding the condition. The Owner will then follow the steps outlined in Section 2.2 of the UCRP (Appendix E) in consultation with the SFDPH and FFA Signatories to address the condition.

In accordance with the site-specific EHSP, appropriate measures will be undertaken to ensure worker safety in areas where unexpected conditions are encountered. The Site Safety and Health Officer (SSHO) will be responsible for performing activity hazard analyses and evaluating any change in site conditions. The SSHO may stop work to determine if the level of site security and PPE is adequate.

4. RISK MANAGEMENT PROTOCOLS FOR WORK IN CERTAIN AREAS WITH KNOWN ENVIRONMENTAL CONDITIONS

The FFA Signatories have identified certain geographic areas with unique environmental conditions and require that work in these areas follow specific risk management protocols. The geographic areas are identified for each Parcel in Appendix C and depicted in figures, where applicable. This section describes the protocols, which have been developed to maintain the integrity of the remedy and to mitigate potential impacts to human health and the environment associated with the unique environmental conditions. For areas subject to these protocols, an Owner is authorized under this RMP to perform Restricted Activities Authorized with Conditions (Section 2.1) only to the extent the Owner complies with all protocols set forth in this Section in addition to those set forth in Section 3.

4.1 Building Foundation Removal – Construction Worker Health and Safety

As identified for each Parcel in Appendix C, as applicable, the FFA Signatories have determined that soil beneath certain building foundations may contain unexpected levels of COCs that have been previously remediated in soil surrounding the buildings but not under the buildings. In addition to the general health and safety protocols outlined in Section 3.1, location-specific protocols are required when the Owner is removing the building foundations or portions of building foundations in these specific locations and exposing the ~~underlying soil~~ HPS Bay Fill/Native Soil.

In preparing and implementing the EHSP pursuant to Section 3.1, focused consideration should be given to these areas and the conditions listed in Appendix C when identifying appropriate health and safety protocols and PPE for the protection of worker health and safety.

In addition, the Owner will engage a full time third-party environmental professional to monitor the characteristics of the soil as the building foundation is being removed. During field construction work, the environmental professional shall physically observe the condition of the soil beneath the foundation (visual and olfactory characteristics) and may screen the soil using one or more field screening instruments as appropriate (organic vapor monitor [OVM], photoionization detector [PID], ~~X-Ray Fluorescence~~ (ray fluorescence [XRF]) analyzer, and gamma ray spectrometer, etc.), as specified in the EHSP. Field screening instruments will be employed if the soil is unnaturally discolored and/or exhibits a chemical odor. The monitoring will be focused on providing real-time

field information on which decisions concerning worker health and safety protocol and PPE can be made.

4.2 Soil Management Areas

As described in Appendix C for each Parcel, as applicable, there are some discrete areas where soil remains with known residual COC concentrations above ROD RGs or Petroleum Preliminary Screening Criteria (PSC; Shaw, 2007) with a restricted No Further Action (NFA) designation. Soil management protocol to address these conditions are included below in Sections 4.2.1 and 4.2.2.

4.2.1 Soil with COCs Above RGs or PSC

The FFA Signatories agreed to leave soil in place with COC concentrations above ROD RGs or PSC in discrete areas where the Navy and/or FFA Signatories have conducted a risk management evaluation and determined that potential health risks can be appropriately managed with the use of a Durable Cover. (Note that naturally occurring metals exist at levels above RGs at various locations throughout the ~~site~~Site, but only the discrete areas as identified in Appendix C for each Parcel are subject to these protocols). If the existing Durable Cover above such soil is removed, the soil from the delineated areas identified in Appendix C must be handled in accordance with one or more of the following soil handling and management protocols:

- The soil may be left in an undisturbed condition and re-covered with a Durable Cover as soon as practical but in no event more than five years after removal without FFA Signatory approval.
- If the soil is disturbed, the soil must be excavated, segregated, and stockpiled. Stockpiled soil must be managed in accordance with the procedures described in Sections 3.4.1, 3.4.2, and 3.64.5 of this RMP. When appropriate in the development process, the Owner may choose to return the soil to the original location and depth from which it was excavated with the exception of utility corridors, and cover it with a Durable Cover. To reduce the exposure to potentially contaminated soil during future utility maintenance, impacted material initially removed from utility corridors will be disposed of at an appropriate offsite disposal facility. Utility corridors will only be backfilled with HPS Bay Fill; /Native Soil or imported material that meets the requirements of the approved SIP (see Section 3.74.5).

- The Owner may choose, at any time, to dispose of the soil at an appropriate offsite disposal facility in compliance with the requirements of that facility and in accordance with all applicable state and federal regulations (Section 3.4.4).

4.2.2 Soil with Residual Petroleum

As described in Appendix C for each Parcel, as applicable, the Navy has implemented corrective action at locations historically affected by petroleum releases and the RWQCB has granted NFA designations where corrective action has been successfully completed. In certain areas, the NFA designation is subject to restrictions related to soil handling. Soil management protocols are described below for NFA areas that are not subject to restrictions and for those subject to restrictions.

4.2.2.1 NFA Areas with Restrictions

Certain location-specific areas on the Site where petroleum releases were remediated but petroleum COCs remained in place above the PSC were granted ~~a No Further Action (an~~ NFA designation by the RWQCB with restrictions. Impacted soil encountered in these locations may not be left in place and re-covered or placed elsewhere on or near the Site (except for temporary storage). This material must be handled in consultation with the RWQCB and in accordance with one or more of the following protocols, or as otherwise approved by the RWQCB:

- The soil may be removed and disposed offsite;
- The soil may be removed, treated to levels below the Tier I PSC or Tier II risk criteria (Shaw, 2007), and placed back onsite under the Durable Cover;
- The soil may be contained (laterally and vertically) at the location in which it was discovered to prevent future migration of the separate phase product; or
- The Owner may conduct a site-specific evaluation of residual saturation to demonstrate the petroleum is not mobile (e.g., evaluate residual saturation) and does not pose a risk to human health and the environment.

4.2.2.2 NFA Areas without Restrictions

Areas where petroleum releases were completely remediated or residual petroleum COCs remain in place below the PSC ~~(Shaw Environmental, Inc. [Shaw], 2007)~~ were granted an NFA designation by the RWQCB without restrictions. Although soil in these areas

may be discolored or exhibit a petroleum odor, absent the presence of unexpected conditions, soil in these petroleum NFA areas may be managed and moved within the Site in accordance with the general soil handling protocol set forth in ~~Sections 3.3 and~~ Section 3.4. These areas are not subject to the restrictions discussed above in Section 4.2.2.1.

4.2.3 Land Use Restriction Areas

There are areas on the Site where the ROD has specified clean-up to commercial/industrial standards. In these areas, referred to as “Land Use Restriction Areas,” residential and other sensitive land uses are prohibited. The specific Land Use Restriction Areas are described in Appendix C for each Parcel, as applicable.

For Land Use Restriction Areas, the general authorization set forth in Sections 2.1 and 3.4 to move excavated soil from one location to another within the Site does not apply. Instead, any HPS Bay Fill and ~~Native Soil~~ excavated in Land Use Restriction Areas may be relocated on the Site only within existing Land Use Restriction Areas, absent approval from the FFA Signatories.

4.3 Groundwater Management Areas

Areas with residual COCs in groundwater are described in Appendix C for each Parcel, as applicable, and are referred to as “Groundwater Management Areas.” This section describes the protocols that apply when performing subsurface work that may impact groundwater in ~~these~~ Groundwater Management Areas. These protocols may include data review (for all such work), preparation of a Groundwater Management Plan (GMP) (for work requiring dewatering), and preparation of an Activity Specific Workplan (for construction of utilities).

4.3.1 Groundwater Data Review

Prior to conducting subsurface activities that may impact groundwater in Groundwater Management Areas, the most recent groundwater monitoring data available will be evaluated by a Registered Professional on behalf of the Owner (hereafter referred to as Registered Professional). The objective of the review shall be to identify areas where COCs may remain in groundwater at concentrations that could pose worker safety concerns or potential vapor intrusion concerns. Based on the findings of the review, the Registered Professional shall determine the appropriate protective measures to address

worker safety, prevent the movement of any residual groundwater contamination, and mitigate the potential for vapor intrusion. Protocols for work in these areas are described below; protocols to address potential vapor intrusion are included in Section 4.4. All activities discussed below will require FFA Signatory notification in accordance with Section 2.2.4.

4.3.2 Groundwater Management Plan (required for construction dewatering)

Current development plans include utility trenches and below-grade parking lots to support the installation of utilities, construction of parks, and residential and commercial development. Due to the depth of these proposed excavations, temporary groundwater dewatering may be necessary to facilitate the construction of below-grade structures. In the event that temporary groundwater dewatering is anticipated in a Groundwater Management Area, the Registered Professional shall prepare an Activity Specific Work Plan (see Section 2.2.3) for groundwater management (~~hereafter referred to as a Groundwater Management Plan (GMP)~~, i.e., a GMP). Appendix I contains an outline that will be used to prepare a GMP. The GMP will be submitted for review and approval by the FFA Signatories prior to conducting any activity that will encounter groundwater with residual COCs.

As a general guide, the following risk management protocols will be included in the GMP:

- Conduct preliminary estimates of the amount of water that will need to be removed and the duration of pumping for the specific construction activity.
- Review of available groundwater monitoring data to evaluate groundwater quality in the vicinity of the planned dewatering activities.
- Based on the location of the proposed dewatering, a Professional Engineer or Geologist licensed in the State of California will evaluate whether the volume of water that would need to be removed would result in the enlargement of an existing groundwater plume or significant alterations in the groundwater flow patterns.
- If the volume estimates, duration estimates, and location of the groundwater dewatering suggest that such activities are not likely to result in the enlargement of a groundwater plume or significant alterations in flow patterns, then simple dewatering methods, such as those employed through the use of a sump pump,

may be proposed to prevent groundwater from accumulating in an open excavation.

- If, based on the results of analysis, dewatering may result in enlargement of an existing groundwater plume, or result in significant alterations to groundwater flow in the vicinity of a plume, then other engineering techniques will be proposed to minimize the impacts to the known plume configuration. The proposed engineering technique will depend on the construction specifications and other site-specific factors, and will be determined by the Owner's State of California, licensed Professional Engineer or Geologist on a site-by-site basis.
- Water removed during dewatering activities will be sampled and tested for profiling and the water disposed of in accordance with applicable permits and regulations. Disposal options may include pre-treatment and discharge into the City's sanitary sewer system under an SFPUC batch wastewater discharge permit. Compliance with provisions of any discharge permit is the responsibility of the Owner.
- The results of the analysis, plans for dewatering, and disposition of accumulated groundwater will be contained in the notification to the FFA Signatories.

4.3.3 Activity-Specific Controls for Utility Work

As much as practicable, installation of subsurface utilities in a Groundwater Management Area will be avoided. The construction of trenches through such areas may create a horizontal conduit for the migration of COCs. Prior to subsurface utility trench installation, the most current groundwater monitoring data will be evaluated by a Registered Professional to identify areas where COCs remain in groundwater at the Site (see Appendix C figures).

Prior to constructing new subsurface utilities in Groundwater Management Areas that may impact groundwater, the Registered Professional shall prepare an Activity Specific Work Plan describing the engineering controls that will be implemented to mitigate the potential for COCs to migrate along utility corridors. Industry standard best management practices for engineered barriers in utility trenches to mitigate the potential for vapor and groundwater migration along utility corridors will be installed, as appropriate for site conditions. Control measures, which have been previously approved for construction at the Site, include:

- Selecting piping materials that are compatible with the geochemical conditions of the subsurface to ensure the integrity of the piping when in contact with known COCs.
- Sealing pipe joints of non-pressurized utilities (e.g., sanitary sewer, storm drain, etc.) to prevent COCs in groundwater or soil vapor from entering the buried piping.
- Installing impermeable trench plugs for new utility corridors crossing through, or over, VOC impacted groundwater at the outer boundaries of the impacted areas. The plugs will encompass the width and depth of the utility trench and have a length of 2 feet. The plug will be comprised of a cement slurry (two-sack mix) containing 2% bentonite.
- Installing impermeable trench plugs at the base of the foundation where new dry utility corridors enter the building, regardless of whether it crosses a VOC-impacted area. This would prevent the possible creation of a new conduit if conditions were to change in the future.
- Installing a silicone sealant within subsurface dry utility conduits (e.g., telephone and electrical conduits) entering a building over a VOC ARIC. Sealing would be at the point of entry into the building.

Additional engineered barriers may be considered and recommended for installation and approval by the FFA Signatories, as appropriate. The findings of the groundwater evaluation and the method for mitigating the potential groundwater migration, if different from those specified above, will be presented to the FFA Signatories and the SFDPH in the Activity Specific Work Plan for review and approval prior to construction.

4.4 Soil Vapor Management Areas

The FFA Signatories have designated certain areas of the Site as an ARIC for VOCs in soil vapor. These areas are identified in Appendix C for each respective Parcel. Structures built and utility work in these areas must comply with industry standards, protocols, and best management practices designed to prevent COCs in soil vapor from migrating into the building, entering utility piping, or compromising the quality of indoor air. Structures built near certain monitoring wells must also undergo evaluation for the need for similar controls. Protocols for these conditions are outlined in the following Sections. All activities discussed below will require notification in accordance with Section 2.2.43.

4.4.1 Vapor Migration Controls for Buildings within VOC ARICs

Prior to construction of any new Inhabited Building within the VOC ARIC, the Owner shall prepare an Activity Specific Work Plan (see Section 2.2.3) for vapor migration controls and obtain approval from the FFA Signatories. The Activity Specific Work Plan shall present the concept and details of vapor migration engineering controls or design alternatives to be incorporated into Inhabited Buildings and utilities that connect to the building. The Activity Specific Work Plan will include a sampling plan for pre-design soil vapor sampling or rationale explaining why pre-design soil vapor sampling is not necessary.

4.4.2 Vapor Migration Controls for Construction of Utilities within VOC ARICs

As much as practicable, installation of subsurface utilities within VOC ARICs will be avoided. The construction of such trenches through an area of known COCs in soil vapor may create a horizontal conduit for the migration of COCs into inhabited buildings.

Prior to subsurface utility trench installation within a VOC ARIC, the most current groundwater monitoring and soil vapor data will be evaluated by a Registered Professional to identify areas where COCs remain in groundwater and soil vapor at the Site. In addition, the Owner shall prepare an Activity Specific Work Plan (see Section 2.2.3) describing the engineering controls that will be implemented to mitigate the potential for COCs to migrate along utility corridors. Control measures, which have been previously approved for construction at the Site are set forth in Section 4.3.2-3. (These measures are applicable for mitigation of potential migration for contaminants in both groundwater and soil vapor.)

Additional engineered barriers may be considered and recommended for installation and approval by the FFA Signatories, as appropriate. The findings of the soil vapor evaluation and the method for controlling the potential soil vapor migration, if different from those specified in Section 4.3.2-3, will be presented to the FFA Signatories and the SFDPH in the Activity Specific Work Plan for review and approval prior to construction.

4.4.3 Vapor Migration Controls for Buildings Within 100 feet of a Remediation Performance Monitoring Well

Remediation performance monitoring wells are monitored by the Navy as a component of the active remedy implementation that are currently ongoing at active IR sites

~~which~~that are adjacent or in close proximity to the transferred Parcels. These wells are designated for each Parcel in Appendix C figures as applicable. Upon successful closure of an IR site, the remediation performance monitoring wells will either be taken out of service by the Navy or remain as part of the Navy's BGMP.

When construction of a building is planned in areas with remediation performance monitoring wells, a Registered Professional shall review the most current groundwater data to evaluate whether a potential vapor source and intrusion pathway may exist (Appendix C figures). As of the date of this RMP, the USEPA has specified that any proposed building within a distance of 100 feet of a performance monitoring well is subject to such evaluation; however, the radial distance will be as specified in the most current version of the USEPA Vapor Intrusion Guidance (USEPA, 2015d, or any relevant updates) and relevant guidance from other regulatory agencies (e.g., DTSC, 2014, 2012, 2011b, 2011c; RWQCB, 2014b). This evaluation shall be conducted whether the remediation performance monitoring well is within or outside any Groundwater Management Area or VOC ARIC. The review shall follow the most current vapor intrusion guidance for soil vapor evaluations from USEPA and other relevant regulatory agencies. If the review indicates the potential for migration of COCs along the utility corridor or poses a vapor intrusion risk to an Inhabited Building, the Registered Professional shall prepare an Activity Specific Work Plan for vapor migration controls. The Work Plan submission shall include written description of this evaluation. If the review indicates the potential for migration of COCs along the utility corridor or a risk for vapor intrusion to an Inhabited Building does not exist, the Registered Professional shall document the basis and conclusions of the evaluation in a Restricted Activities Work Plan, Activity Specific Work Plan, or a separate Technical Memorandum, which will be submitted to the FFA Signatories.

5. REFERENCES

~~California Department of Toxic Substances Control (DTSC), 2014. Human Health Risk Assessment Note 5, Health-based Indoor Air Screening Criteria for Trichloroethylene (TCE). 23 August.~~

~~DTSC, Los Angeles Regional Water Quality Control Board and San Francisco Regional Water Quality Control Board, 2012. Advisory – Active Soil Gas Investigations. April.~~

~~DTSC, 2011b. Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October.~~

DTSC, 2011c. Final Vapor Intrusion Mitigation Advisory – Revision 1. October.

~~Navy, 1992. Federal Facilities Agreement, Hunters Point Shipyard.~~

DTSC, Los Angeles Regional Water Quality Control Board and San Francisco Regional Water Quality Control Board, 2012. Advisory – Active Soil Gas Investigations. April.

DTSC, 2014. Human Health Risk Assessment Note 5, Health-based Indoor Air Screening Criteria for Trichloroethylene (TCE). 23 August.

Regional Water Quality Control Board (RWQCB), 2014b. Draft Interim Framework for Assessment of Vapor Intrusion at TCE-Contaminated Sites in the San Francisco Bay Region. 16 October.

RWQCB, 2013k. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater; Update to Environmental Screening Levels. 23 December.

Shaw Environmental Inc. (Shaw), 2007. Final New Preliminary Screening Criteria and Petroleum Program Strategy, prepared on behalf of the Navy. 21 December.

United States Department of the Navy (Navy), 1992. Federal Facilities Agreement, Hunters Point Shipyard.

United States Environmental Protection Agency (USEPA), 2015a. Regional Screening Levels (Formerly PRGs), updated November.
<http://www3.epa.gov/region09/superfund/prg/>

USEPA, 2015d. Office of Solid Waste and Emergency Response. Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air, June (OSWER Publication 9200.2-154).

APPENDICES

APPENDIX A

Definition of Terms

DEFINITION OF TERMS

The following are definitions of terms listed in the RMP:

Covenant: “Covenant” shall mean the Covenant to Restrict Use of Property, Environmental Restriction (also referred to as the CRUP).

Covenantor: “Covenantor” shall mean the United States of America acting through the Department of the Navy.

Durable Cover: “Durable cover” shall mean hardscape (e.g., asphalt, buildings, sidewalks, etc.) or a minimum of two feet of clean imported fill that is constructed over HPS Bay Fill or Native Soil, or equivalent physical barrier, designed to meet the performance requirements stated in the ROD for each Parcel.

FFA Signatories: “FFA Signatories” shall mean the agencies that signed the Federal Facilities Agreement (FFA), namely the U.S. Environmental Protection Agency (EPA), California Department of Toxic Substances Control (DTSC), California Regional Water Quality Control Board (RWQCB), and the U.S. Department of the Navy (Navy).

Hazardous Substances: “Hazardous Substances” shall have the meaning provided in section 101 of the Comprehensive Environmental Response, Compensation, and Liabilities Act of 1980 (CERCLA), 42 U.S.C. § 9601(14).

Horizontal Development: “Horizontal Development” shall mean development of the Site in preparation for Vertical Development pursuant to a Restricted Activities Work Plan approved by the FFA Signatories. Horizontal Development includes but is not limited to such activities as demolition and removal of hardscape, mass grading, soil compaction and surcharging, creation of building pads, construction of utilities, and construction of new ground level hardscape such as roads and sidewalks.

HPS Bay Fill: “HPS Bay Fill” shall mean non-native historically imported fill that was placed bay ward of the original shoreline and/or placed on top of native bedrock and soil to create the current footprint of HPS. The HPS Bay Fill potentially contains naturally occurring asbestos and naturally occurring metals and must remain under the Durable Cover as documented in the Remedial Action Work Plan for the Site. The term HPS Bay Fill DOES NOT mean: i) bedrock especially bedrock outcrops as identified in the Navy Remedial Action Work Plans that were specifically excluded from requiring a durable

cover; ii) any imported soil, which has been certified to meet soil importation criteria, and was used to build the durable cover (i.e., a minimum of two feet of clean imported fill); iii) clean soil that has been imported by the Navy, meaning it has been certified to meet soil importation criteria, and used as backfill in conjunction with any prior Navy removal or remedial action (e.g., soil excavation areas).

Inhabited Building: “Inhabited Building” refers to a structure with an enclosed indoor air space that is regularly occupied and used by humans (or could be occupied and used in the future). This would include, for instance, homes, offices, stores, commercial and industrial buildings, etc., but would not normally include open sheds, carports, pump houses, or other structures that are not regularly occupied by humans.

Native Soil: “Native soil” shall mean any soil that was deposited through natural processes.

Owner: “Owner” shall mean the Covenantor’s successors in interest, and their successors in interest, including heirs and assigns, which at the time have a record fee interest in the Property, or any portion thereof.

Parcel: “Parcel” shall mean a portion of the Site as defined in the Navy Finding of Suitability to Transfer (FOST) documents.

Petroleum Substances: “Petroleum Substances” shall mean crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under CERCLA.

Registered Professional: “Registered Professional” shall mean a Professional engineer or geologist actively registered with the state of California Board for Professional Engineers, Land Surveyors, and Geologists.

Residential Use: “Residential Use” refers to the use of an enclosed structure as: (1) a residence, including any mobile home or factory-built housing, constructed or installed for use as residential human habitation; (2) a hospital for humans; (3) a school for persons under 21 years of age; or (4) a day care facility for children.

Residential Land Use Restriction: “Residential Land Use Restriction” refers to provisions and/or restrictions imposed on a property that shall restrict the land use to non-residential uses (e.g., commercial, community or open space). The residential land use

restriction shall remain with the property unless a change in condition occurs that results in the removal or reduction of the restriction.

Restricted Activities: “Restricted Activities” shall mean any activities that are subject to Restrictions under a CRUP unless prior written approval for the activity is granted by the FFA Signatories.

Restrictions: “Restrictions” shall mean protective provisions, covenants, restrictions and conditions imposed on any portion of the Site under a CRUP entered into between the Navy and DTSC and the Deeds that convey the Site from the Navy to the City.

Site: “Site” shall mean the area subject to the RMP as illustrated in Figure 1-1.

Unexpected Conditions: An “Unexpected Condition” is a condition observed in the soil, soil gas, and/or groundwater that indicates the potential for Hazardous Substances and/or Petroleum Substances to exist beneath the Site at a location that has not previously been identified, characterized, or remediated by the Navy.

Vertical Development: “Vertical Development” shall mean construction of facilities, structures, and appurtenances, and shall include associated excavation, fine grading, and utility work.

APPENDIX B

Contact Information

CONTACT INFORMATION

FAA Signatory Points of Contact

DTSC

Hunters Point Project Manager
Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, CA 94710
Phone: 510-540-2122

RWQCB

Hunters Point Project Manager
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612
Phone: 510-622-3966

U.S. EPA

Hunters Point Project Manager
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, CA 94105
Phone: 415-942-3005

U.S. Navy

BRAC Environmental Coordinator
BRAC Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310
Phone: 619-532-0913

Other Points of Contact

City and County of San Francisco Department of Public Health

Hunters Point Project Manager
1390 Market Street, Suite 210
San Francisco, CA 94102
Phone: 415-252-3800

Bay Area Air Quality Management District

939 Ellis Street
San Francisco, CA 94109
Phone: 415-771-6000 | 1-800-HELP AIR

California State Lands Commission

100 Howe Avenue, Suite 100 South
Sacramento, CA 95825
Phone: 916-574-1900

U.S. Army Corps of Engineers

1455 Market Street
San Francisco, CA 94103
Phone: 415-503-6773

U.S. Fish and Wildlife Service

2800 Cottage Way
Sacramento, CA 95825
Phone: 916-414-6464

San Francisco Bay Conservation and Development Commission

50 California Street, Suite 2600
San Francisco, CA 94111
Phone: 415-352-3600

San Francisco Main Library

100 Larkin Street
Government Information Center, 5th Floor
San Francisco, CA 94102
Phone: 415-557-4500

APPENDIX C

Summary of Environmental Site Conditions

SUMMARY OF ENVIRONMENTAL CONDITIONS FOR THE SITE

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Figure C-4: Parcels UC-1 and UC-2 Environmental Conditions

C-1. SUMMARY OF ENVIRONMENTAL SITE CONDITIONS

This Appendix summarizes the various Parcels that collectively make up the Site and their current environmental conditions. The final environmental conditions of the Site and in-place remedy are thoroughly documented in the RACR, Petroleum Hydrocarbon Closeout Reports, Radiological RACR, and the FOST for each Parcel. As of the date of transfer for each Parcel, the Navy has implemented all petroleum corrective actions and the CERCLA remedy.

The former Navy Parcels that make up the Site include Parcel B-1, IR-7/18 – Lots 1 and 3, Parcel G, Parcel UC-1, and Parcel UC-2. This Appendix provides Parcel-specific summaries of the environmental conditions of the Site. For each Parcel, a general site description, the environmental conditions, a summary of the CERCLA remedy, a description of any areas subject to special protocols under this RMP, and figures depicting key environmental features are presented.

Notwithstanding the known environmental conditions described for each Parcel in this Appendix, the potential exists for unexpected conditions to be encountered at the Site. If unexpected conditions are encountered, appropriate health and safety protocol should be assessed (see Sections 3.1 and 4.1), and the Unexpected Conditions Response Plan should be implemented (see Section 3.8 and Appendix D).

C-1.1 Parcel B-1

Parcel B-1 includes approximately 24.3 acres in the northern area of HPS and is bounded by IR sites 7 and 18 to the northwest (see Section C-1.2), Parcel B-2 and San Francisco Bay (Parcel F) to northeast, and Parcel C and former Parcel A to the south (Figure C-1)¹. The land surface at Parcel B-1 is mostly paved or covered by structures with the exception of the steep hillsides on the southwest, which are covered by a vegetated soil cover. (Navy, FOST~~pending~~).

Historically, Parcel B-1 was part of the industrial support area at HPS and used for shipping, ship repair, training, barracks, and offices (Navy, *pending*). As a result of industrial and radiological research activities conducted by the Navy or other tenants in

¹ The area included for Parcel B-1 does not include the 2.6 acres that encompass IR-10 because remediation of this site is ongoing and IR-10 will not be transferred with the remainder of the parcel.

Parcel B-1, the chemicals of concern (COC) released in soil at the Property included metals; VOCs; semivolatile organic compounds (SVOCs), including pesticides, polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs); and total petroleum hydrocarbons (TPH). Radionuclides of concern at the Property included cesium-137, radium-226, plutonium-239, and strontium-90. COCs in groundwater were VOCs, Chromium VI, and mercury.

C-1.1.1 Environmental Condition

The Navy has completed remedial and removal actions in accordance with the Amended Parcel B ROD (Navy, 2009d). The final RACR for Parcel B-1 Durable Cover installations was submitted in January 2017 (ERRG, 2017), and the FFA signatories have concurred with the final RACR (*List referenced letters when complete*). The final RACR for the soil excavation and stockpile removals at Parcels B, D-1, and G was submitted in October 2011 (ERRG, 2011), and EPA has concurred with this RACR (USEPA, 2014a).

As contemplated in the Amended Parcel B ROD, certain COCs remain in soil, soil vapor, and groundwater at Parcel B-1, at levels and in conditions that the FFA Signatories have determined are consistent with the ROD Remedial Action Objectives (RAO). The COCs that remain in soil at Parcel B-1 include metals, VOCs, SVOCs, pesticides, and PCBs (ERRG, 2015). The COCs that remain in soil vapor are VOCs, including benzene, chloroform, tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride in designated VOC ARICs (Sealaska, 2013; ERRG, 2017). The COCs that remain in groundwater include TCE, vinyl chloride and mercury (ERRG, 2017). Along the shoreline areas of Parcel B-1, copper, lead, mercury, and chromium VI were identified in an Amended ROD RAO as compounds with trigger levels to protect ecological receptors (ChaduxTt, 2009). Notable environmental conditions are depicted on Figure C-1.

C-1.1.2 CERCLA Remedy

The CERCLA remedy, approved in the Amended Parcel B ROD, included: i) excavation of soil and offsite disposal; ii) a Durable Cover across all of Parcel B as a physical barrier to cut off potential exposure to residual ubiquitous metals in soil; iii) shoreline revetment to protect potential ecological receptors in the Bay; iv) in-situ treatment of groundwater to promote biodegradation of VOCs as a source reduction measure; v) groundwater monitoring; vi) installation of a soil vapor extraction (SVE) system at IR Site 10 to remove and treat VOCs in soil gas from soil and groundwater in that area as a source

reduction measure; vii) institutional controls (IC); and viii) cleanup of radiologically impacted soil and structures.

With the exception of the IR-10 carveout area, the remedial action (RA) at Parcel B-1 was completed in 2012. Soil, soil vapor, and groundwater remediation activities are ongoing in the IR-10 carveout area. The FOST documents the CERCLA remedy that is in place in Parcel B-1 (Navy, *pending*). The EPA, DTSC, and the RWQCB have concurred with the Final FOST (*Reference Approval Letters when complete*). Components of the remedy that remain to ensure that human health and environment are protected from potential long-term health risks include:

- Durable Cover over the entire Parcel to prevent contact with residual ubiquitous metals in soil. The Parcel B-1 Durable Cover is defined as hardscape (e.g., asphalt, building foundations, concrete pads, sidewalks, etc.), two feet of clean imported soil fill, or shoreline revetment as defined in the Amended Parcel B ROD (Navy, 2009d), Remedial Design (ChaduxTt, 2011, 2012), Remedial Action Work Plan (RAWP; ERRG, 2012d) and RACR (ERRG, 2017).
- Groundwater monitoring to verify plume stability or that the groundwater remedy continues to meet the RGs defined in the Amended Parcel B ROD.
- Land use and activity restrictions and institutional controls, implemented through a CRUP and federal quitclaim deed, to prevent or minimize exposure to residual COCs in the soil, soil vapor, and groundwater. The entire Parcel includes restrictions related to the Durable Cover and the soil underlying the Durable Cover.

The requirements for inspection, maintenance, and reporting of these remedy components are provided in the O&M Plan for Parcel B-1 (ERRG, 2016)², the Remedial Action Monitoring Plan (ChaduxTt, 2011 and 2012)³, and Final Basewide Groundwater

² The O&M Plan for Parcel B-1 (revised draft final, April 2016) covers the inspections, maintenance, and repairs required for the site-wide Durable Covers and the O&M and monitoring of the IR Site 10 SVE system.

³ Long-term groundwater monitoring is performed in accordance with the Remedial Action Monitoring Plan and the final BGMP Sampling and Analysis Plan and addenda.

Monitoring Program Sampling and Analysis Plan (CE2-Kleinfelder Joint Venture, 2011a,b, 2012a,b, and 2014)², which may be revised from time to time.

The radiological corrective actions in Parcel B-1 are complete and no radiological restrictions remain on Parcel B-1. The California Department of Public Health (CDPH) issued the Radiological Unrestricted Release Recommendation for Parcel B-1 in July 2012 and reinstated the Radiological Unrestricted Release Recommendation for Parcel B in April 2016 stating that Parcel B is suitable for unrestricted use with respect to radiological issues (CDPH, 2012b and 2016).

C-1.1.3 Areas Subject to Special Protocols

The following areas on Parcel B-1 contain environmental conditions that are subject to special protocols as summarized in Section 4 of the RMP. A tabular summary of those areas subject to special protocols is presented in Table C-1.

C-1.1.3.1 Areas Requiring Building Foundation Removal – Construction Worker Health and Safety

The general health and safety protocols outlined in RMP Section 3.1 are in place to protect workers from potential impacts to human health, such as those from ubiquitous metals. However, location-specific protocols are required when the Owner is removing building foundations or portions of building foundations in specific locations that expose the HPS Bay Fill/Native Soil. The FFA Signatories have determined that soil beneath certain building foundations at Parcel B-1 may contain unexpected levels of chemicals that have been previously remediated in soil surrounding the buildings, but not under buildings. Specific chemicals of potential concern may include metals, PCBs, PAHs, SVOCs, and/or VOCs. Location-specific health and safety protocols are required, as set forth in Section 4.1, if and when building foundations are removed in the following locations (refer to Figure C-1):

- Building 113 and 113A – Soil excavated from beneath the building slab should be monitored during and after demolition for unexpected conditions. Prior soil remediation did not indicate that metals are present in surrounding soils. Health and safety protocol should consider the potential presence of PCBs, PAHs, and VOCs.

- ~~Building 123 – Soil excavated from beneath the building slab should be monitored during and after demolition for unexpected conditions. Health and safety protocol should consider the potential presence of PAHs, PCBs, and VOCs.~~
- Building 146 – Soil excavated from beneath the building slab should be monitored during and after demolition for unexpected conditions. Health and safety protocol should consider the potential presence of lead, cadmium, PCBs, SVOCs, and VOCs.

C-1.1.3.2 Soil with Residual Petroleum

1.1.3.2.1 NFA Areas Without Restrictions

Cleanup and closure of petroleum areas of concern (AOC) or borings of concern within Parcel B-1 has been completed. RWQCB staff issued NFA letters closing the Parcel B-1 petroleum AOCs (RWQCB, 2012a, c-g; 2013b-j). The RWQCB concurred with the Navy's recommendations of NFA with no restrictions and designated the sites as suitable for residential use. Soil in these areas, however, may exhibit some residual visual and/or olfactory evidence of petroleum. The areas where soil may exhibit visual and olfactory evidence of petroleum impacts are: AOCs 7-E and 46-D, which overlap with IR-7/18; 10-C; 23-A; 23-B; 24-B; 24-D; 24-E; 26-A; 46-C; 46-E1; 46-E2; 60-A; and 60-B (depicted on Figure C-1).

Abandoned conveyance pipes coated with a corrosion-resistant tar material containing PAHs may be present below ground surface at Parcel B-1⁴, and must be handled in accordance with all applicable federal, state, and local laws and regulations. The pipes and their associated coating material in the subsurface do not present a threat to human health or the environment and will not present a threat to human health or the environment if handled in accordance with applicable laws (Navy, *pending*).

C-1.1.3.3 Groundwater Management Areas

In Parcel B-1, the IR-10 groundwater area contains residual concentrations of VOCs (ERRG, 2015) with exceedances of the vinyl chloride above the RG in wells IR10MW59A, IR10MW61A, and IR10MW71A (CE2-Kleinfelder, 2015b). The location of VOCs in groundwater in IR-10 is identified on Figure C-1. Subsurface work in these

⁴ It has been confirmed that petroleum AOC 24-E contains pipes coated with a corrosion-resistant material containing PAHs (RWQCB, 2015b).

areas must comply with standards and protocols as set forth in Sections 3.5, 3.6, and 4.3 of the RMP.

C-1.1.3.4 Soil Vapor Management Areas

Parcel B-1 includes ARICs for VOCs in soil vapor as identified on Figure C-1. Construction of inhabited buildings and subsurface utility corridors within these areas must comply with standards and protocols as set forth in Section 4.4 of the RMP.

C-1.2 Installation Restoration Sites 7 and 18 (IR-7/18)

The area referred to as Installation Restoration Sites 7 and 18 (IR-7/18) consists of approximately 14.2 acres comprised of two adjacent IR sites, IR Site 7, and IR Site 18, located in the northwest corner of Parcel B-1 (See Figure C-2.) IR 7/18 is bounded to the northeast by the San Francisco Bay, non-Navy property to the northwest and southwest, and the remainder of Parcel B-1 to the southeast. Historically, IR-7/18 was created by depositing fill into the Bay, and later expanded with engineered fill materials consisting of local quarried bedrock and some construction debris during the 1950s and 1960s (ERRG, 2012a). Past activities at IR Site 7 include sandblasting and disposal of sandblasting grit and debris and debris associated with decontamination of radiologically contaminated ships involved in atomic weapons testing in the South Pacific. Past activities at IR Site 18 include ground surface releases of waste oil and use of fill materials contaminated with petroleum hydrocarbons. The land surface at IR 7/18 slopes from southeast to northeast toward the Bay. There are no structures present and vegetation consists of plants introduced to stabilize the constructed soil cover. (Navy, 2013a)

Subsequent to preparation of the ROD, IR-7/18 was delineated into three lots to aid in the transfer of the lots that do not have restrictions for ROCs. Lot 1 is located along the southern boundary of IR-7/18, Lot 2 is located in the central and northern portion of IR-7/18, and Lot 3 is located along the eastern boundary of IR-7/18. The COCs at Lots 1 and 3 include metals, VOCs, SVOCs, including pesticides, PCBs, PAH, and TPH. The COCs released in sediment along the shoreline at Lot 3 include metals, pesticides, PCBs, and PAHs.

The RMP, which sets forth certain requirements or protocols that, if followed, will allow certain activities that are otherwise restricted to be performed without additional approval by FFA Signatories, applies to future development work that is conducted in Lots 1 and 3.

This RMP does not apply to any future development work that is conducted in Lot 2. Lot 2 is comprised of the portion of IR-7/18 that is restricted because of the potential presence of ROCs⁵. Any future development work that is conducted in Lot 2 must be conducted in accordance with restrictions set out in the CRUP and deed restrictions for Lot 2 and will require the owner to obtain approval of a Restricted Activities Work Plan for Lot 2 by the FFA Signatories (see Section 2.2.2).

C-1.2.1 Environmental Condition in Lots 1 and 3

For CERCLA purposes, the Navy has historically included IR-7/18 as part of Parcel B. The Navy has completed remedial and removal actions in accordance with the Amended Parcel B ROD (Navy, 2009d). The final RACR for IR-7/18 was submitted in 2012 (ERRG, 2012a) and the FFA Signatories have concurred with the final RACR in their comments to the RACR (USEPA, 2012).

As contemplated in the Amended Parcel B ROD, certain COCs remain in soil and soil vapor at Lots 1 and 3, at levels and in conditions that the FFA Signatories have determined are consistent with the ROD Remedial Action Objectives. The COCs that remain in the soil at IR-7/18 Lots 1 and 3 include metals, VOCs, SVOCs, PCBs, PAHs and TPH (Navy, 2013a). The COC that potentially remain in soil vapor at IR-7/18 Lots 1 and 3 are VOCs. No COCs remain in groundwater. Notable environmental conditions are depicted on Figure C-2.

C-1.2.2 CERCLA Remedy for Lots 1 and 3

The CERCLA remedy for Lots 1 and 3, approved in the Amended Parcel B ROD (Navy, 2009d), included: i) excavation of soil and offsite disposal; ii) a Durable Cover as a physical barrier to cut off potential exposure to residual ubiquitous metals in soil; iii) shoreline revetment to protect potential ecological receptors in the Bay; and iv) ICs.

The RA in IR-7/18 was completed in 2011 and the FOST documents that the IR-7/18 CERCLA remedy is in place. Components of the remedy in Lots 1 and 3 that remain to

⁵ ROCs that might be present in Lot 2 at depths greater than four feet below the Navy installed surface include cesium-137, radium-226, and strontium-90. The Navy has implemented the CERCLA remedy for radionuclides in structures and soil at Lot 2, which consists of survey, decontamination, excavation, disposal, groundwater monitoring, and institutional controls.

ensure that human health and environment are protected from potential long-term health risks include:

- A Durable Cover to prevent contact with residual ubiquitous metals throughout IR-7/18 in soil. The IR-7/18 Durable Cover includes a small area of revetment in Lot 3 and soil covers as defined in the Amended Parcel B ROD (Navy, 2009d), Remedial Design (ChaduxTt, 2010), RAWP (ERRG, 2010) and RACR (ERRG, 2012a). Lots 1 and 3 include restrictions related to the Durable Cover.
- Land use and activity restrictions and institutional controls, implemented through a CRUP and federal quitclaim deed, to prevent or minimize exposure to residual COCs in the soil, soil vapor, and groundwater.

The radiological corrective actions in Lots 1 and 3, which included a few small sections of sewer and storm drain removals, are complete and no radiological restrictions remain. CDPH issued a Radiological Unrestricted Release Recommendation for Parcel B, which included the small sections of sewer and storm drain removals in these lots, in July 2012 (CDPH, 2012b).

C-1.2.3 Areas Subject to Special Protocols

The following areas on IR-7/18 Lots 1 and 3 are subject to special protocols as summarized in Section 4. A tabular summary of those areas subject to special protocols is presented in Table C-1.

C-1.2.3.1 Soil with Residual Petroleum

1.2.3.1.1 NFA Areas Without Restrictions

Cleanup and closure of petroleum AOCs within IR-7/18 Lots 1 and 3 have been completed. AOCs located in or partially in Parcel B IR-7/18 Lots 1 and 3 include 7-B, 7-E, 18-B, and 46-D. RWQCB staff issued NFA letters closing the IR-7/18 petroleum areas of concern in 2012 (RWQCB, 2012a,b,f), concurring with the Navy's individual site closeout reports' recommendation for NFA with no restrictions. The Durable Cover and institutional controls designed to be protective of exposure to the other COCs at IR-7/18 (metals and organic chemicals) also provides protection from exposure to any residual petroleum materials in the subsurface (Navy, 2013a). Soil in these areas, however, may exhibit residual visual and/or olfactory evidence of petroleum. The areas

where soil may exhibit visual and olfactory evidence of petroleum impacts in Lots 1 and 3 are AOCs 7-B, 7-E, 18-B and 46-D (RWQCB, 2012a,b).

C-1.2.3.2 Soil Vapor Management Areas

The entirety of Lots 1 and 3 in IR-7/18 are included in an ARIC for VOCs in soil vapor as identified on Figure C-2. Construction of inhabited buildings and utility corridors within these areas must comply with standards and protocols as set forth in Section 4.4 of the RMP.

C-1.3 Parcel G

Parcel G includes about 40 acres in the central area of HPS and is bounded by Parcels UC-1 to the north, Parcels C and D-1 to the east, Parcels D-1 and E to the south, and Parcels E and UC-1 to the west (Figure 1-1) (Navy, 2015c). The land surface at Parcel G is entirely covered with a Durable Cover (hardscape) that consists of asphalt, concrete, or building foundations and slopes gently from northwest to southeast toward the bay (Navy, 2015c).

Historically, Parcel G was part of the industrial support area at HPS and used for shipping, ship repair, laboratory, office and commercial activities (Navy, 2007). As a result of past industrial activities in Parcel G, the COCs released in soil include metals; VOCs; SVOCs, including pesticides; PCBs; PAHs; and TPHs. ROCs at the Property include cesium-137, radium-226, and strontium-90. COCs in groundwater are primarily VOCs and selected metals.

C-1.3.1 Environmental Condition

The Navy has completed remedial and removal actions in accordance with the Parcel G ROD (Navy, 2009c). The final RACR for the soil excavation and stockpile removals at Parcels B, D-1, and G was submitted in October 2011 (ERRG, 2011). The final RACR for Parcel G was submitted in 2014 (Arcadis, 2014a) and the FFA Signatories have concurred with the final RACR (USEPA, 2014a,b).

As contemplated in the Parcel G ROD, certain COCs remain in soil, soil vapor, and groundwater at Parcel G at levels and in conditions that the FFA Signatories have determined are consistent with the ROD Remedial Action Objectives. The COCs that remain in soil above the RGs and ALs include metals, including arsenic, chromium VI, cobalt, lead, and manganese, and PAHs benzo(a)anthracene, benzo(a)pyrene, and

benzo(b)fluoranthene (Navy, 2009c; Navy, *pending*). COCs in soil vapor that remain at Parcel G include the VOCs benzene, carbon tetrachloride, chloroform, tetrachloroethene (PCE), and TCE and their degradation products (Sealaska, 2013). COCs that remain in A-aquifer groundwater include VOCs benzene, carbon tetrachloride, chloroform, PCE, TCE, their degradation products, and total xylenes (Navy, 2010c; Arcadis, 2014a). COCs are not present in B aquifer groundwater at levels that may pose a health risk (Navy, 2009c). COCs are not present in groundwater in the A or B aquifers at levels that may pose potential environmental impacts to the Bay. However, the Navy continues to conduct groundwater monitoring for chromium VI to confirm that concentrations remain below the RG (ERRG, 2014b). Notable environmental conditions at Parcel G are depicted on Figure C-3 and further described in the following Sections.

C-1.3.2 CERCLA Remedy

The CERCLA remedy, approved in the Parcel G ROD, included: i) excavation and offsite disposal of soil in selected areas; ii) installation of Durable Covers across all of Parcel G as physical barriers to cut off potential exposure to soil; iii) removal of two soil stockpiles and offsite disposal; iv) active groundwater treatment by injection of zero-valent iron (ZVI) or a biological substrate to destroy VOCs and treat hexavalent chromium in groundwater; v) long-term groundwater monitoring; vi) a soil vapor survey; vii) ICs; and vii) cleanup of radiologically impacted soil and structures.

The RA in Parcel G was completed in 2014 and the FOST documents that the Parcel G CERCLA remedy is in place. The USEPA, DTSC, and RWQCB have concurred with the FOST (USEPA, *pending*; RWQCB, *pending*; DTSC, *pending*). Components of the remedy that remain to ensure that human health and environment are protected from potential long-term health risks include:

- A Durable Cover over the entire Parcel to prevent contact with residual ubiquitous metals in soil. The Parcel G Durable Cover is defined as hardscape (e.g., asphalt, building foundations, concrete pads, sidewalks, etc.) in the ROD (Navy, 2009c), Remedial Design (RD; Navy, 2010b), RAWP (Arcadis, 2012) and RACR (Arcadis, 2014a and ERRG, 2014a). The entire Parcel includes restrictions related to the Durable Cover.
- Groundwater monitoring to verify plume stability or that the remedy continues to meet the RGs defined in the Parcel G ROD.

- Land use and activity restrictions and ICs, implemented through a CRUP and federal quitclaim deed, to prevent or minimize exposure to residual COCs in the soil, soil vapor, and groundwater.

The radiological corrective actions in Parcel G are complete and no radiological restrictions remain on Parcel G. CDPH issued the Radiological Unrestricted Release Recommendation for Parcel G in 2012 and reinstated the Radiological Unrestricted Release Recommendation for Parcel G in April 2016 stating that Parcel G is suitable for unrestricted use with respect to radiological issues (CDPH, 2012a and 2016).

C-1.3.3 Areas Subject to Special Protocols

The following areas on Parcel G are subject to special protocols as summarized in Section 4. A tabular summary of those areas subject to special protocols is presented in Table C-1.

C-1.3.3.1 Areas Requiring Building Foundation Removal - Construction Worker Health and Safety

The FFA Signatories have determined that soil beneath certain building foundations at Parcel G may contain unexpected levels of chemicals that have been previously remediated in soil surrounding the buildings. Specific chemicals of potential concern include PCBs, PAHs, metals, petroleum hydrocarbons and VOCs. Location-specific health and safety protocols are required, as set forth in Section 4.1, if and when building foundations are removed in the following locations (refer to Figure C-3):

- Building 366 – Soil excavated from beneath the building slab should be monitored during and after demolition for unexpected conditions. Health and safety protocol should consider the potential presence of chlorinated VOCs, PAHs, TPH, and metals (lead and antimony).
- Building 408 – Soil excavated from beneath the former building slab should be monitored during and after demolition for unexpected conditions. Health and safety protocol should consider the potential presence of PCBs, PAHs, chlorinated VOCs, TPH, and metals (lead and cadmium).
- Building 411 – Soil excavated from beneath the building slab should be monitored during and after demolition for unexpected conditions. Health and safety protocol should consider the potential presence of PCBs, PAHs, chlorinated VOCs, TPH,

and metals (lead, cadmium, chromium, hexavalent chromium, nickel and mercury).

- Building 418 – Soil excavated from beneath the building slab should be monitored during and after demolition for unexpected conditions. Health and safety protocol should consider the potential presence of PCBs, PAHs, chlorinated VOCs, TPH, and metals (lead, cadmium, chromium, hexavalent chromium, copper and zinc).
- Building 436 – Soil excavated from beneath a portion of the building slab should be monitored during and after demolition for unexpected conditions. Health and safety protocol should consider the potential presence of PCBs, chlorinated VOCs, benzene, toluene, ethylbenzene, xylenes, and metals (lead, cadmium and mercury).
- Building 439 – Soil excavated from beneath the building slab should be monitored during and after demolition for unexpected conditions. Health and safety protocol should consider the potential presence of PCBs chlorinated VOCs, benzene, toluene, ethylbenzene, xylenes, and metals (lead, cadmium and mercury).

C-1.3.3.2 Soil with Residual Petroleum

1.3.3.2.1 NFA Areas Without Restrictions

RWQCB staff issued NFA letters closing the Parcel G petroleum corrective action areas in 2011 (RWQCB, 2011a-h), determining that residual contamination left-in-place is below PSCs and pose no significant risk to human health or the environment. As such, soil in these areas, may exhibit residual visual and/or olfactory evidence of petroleum. The areas where soil may exhibit visual and olfactory evidence of petroleum impacts are: AOCs 33-A, 33-B, 33-C, 37-A, 45D-A, and 65-A, and borings IR34B018, IR34B023, IR71B008, and PA45TA00. These areas are depicted on Figure C-3. This soil may be managed without restriction, subject to the protocol in Section 4.2.2.2 of the RMP unless an unexpected condition is encountered, such as evidence of free petroleum liquid or petroleum sheen on the soil, in which case, soil management will follow the protocol in Section 3.8.

Pipes coated with a material containing PAHs may be present below ground surface at various locations at the Property. PAHs are regulated substances and must be handled in accordance with all applicable federal, state, and local laws and regulations. The Navy, in consultation with EPA, DTSC, and the Water Board, has determined that the pipes and

associated coating material in their existing subsurface condition do not present any threat to human health or the environment, and will not present any threat to human health or the environment if and when removed and handled in accordance with applicable laws. (Navy, *FOST*pending).

C-1.3.3.3 Land Use Restriction Areas

There are areas of Parcel G where residential use is restricted because there are COCs in soil above residential Action Levels including the metals arsenic, chromium VI, cobalt, lead, and manganese, and the PAHs benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene, as depicted on Figure C-3. These areas are subject to soil handling and management protocols described in Sections 3.4 and 4.2.

C-1.3.3.4 Groundwater Management Areas

The COCs in groundwater at Parcel G are a limited number of VOCs.

COCs at the former IR-09 plume included chloroform, methylene chloride, and TCE and degradation products. Groundwater remediation performance monitoring continues at the former impacted area in IR-09 North. The former IR-09 plume is not expected to pose a vapor intrusion risk to future residents based on COC concentrations less than RGs.

COCs at the former IR-33 plume included benzene, carbon tetrachloride, chloroform, naphthalene, TCE and degradation products, and total xylenes. Groundwater remediation performance monitoring continues at the former impacted area in IR-33 for carbon tetrachloride and chloroform at well IR33MW64A. Groundwater remediation performance monitoring at the former impacted area in IR-33 has been discontinued for benzene, naphthalene, TCE, and total xylenes. Well IR33MW64A is located in a designated ARIC for VOCs in soil vapor. Soil vapor sampling results in the general area located outside the ARIC for VOCs in soil vapor in 2010 did not indicate concentrations that would pose an unacceptable risk to potential future residential receptors via vapor intrusion under documented site conditions.

COCs at the former IR-71 plume included carbon tetrachloride, chloroform, and PCE, TCE, and degradation products. Groundwater remediation performance monitoring continues at the former impacted area in IR-71 East for PCE, TCE and vinyl chloride at wells IR71MW03A and IR71MW04A. At the IR-71 plume, PCE and TCE are present in groundwater at concentrations that slightly exceed their respective RGs, but concentrations of these COCs have demonstrated an overall decreasing trend since

groundwater treatment in 2008. Although concentrations of PCE and TCE in groundwater at the IR-71 plume (well IR71MW03A) slightly exceed the RG, soil vapor concentrations in the vicinity of well IR71MW03A do not present a significant VI risk to residential receptors (Sealaska, 2013).

Chloroform was identified as a COC at non-plume wells IR44MW08A and IR09MW44A. Groundwater remediation performance monitoring was discontinued at wells IR44MW08A and IR09MW44A in 2012 and 2008, respectively.

Work in these areas must comply with standards and protocols as set forth in Sections 3.5, 3.6 and 4.3 of the RMP.

C-1.3.3.5 Soil Vapor Management Areas

Parcel G includes ARICs for VOCs in soil vapor as identified on Figure C-3. Construction of utility corridors and inhabited buildings within these areas must comply with standards and protocols as set forth in Section 4.4 of the RMP.

C-1.4 Parcels UC-1 and UC-2

Parcel UC-1 includes a portion of Spear Avenue and is bounded on the north by Parcels A and D-2, on the east by Parcel UC-2, on the south by Parcels E and G, and on the west by Parcel UC-3 (Figure 1-1). Historically, most of the area associated with Parcels UC-1 and UC-2 has been a paved roadway or parking area. Parcel UC-1 is nearly completely paved and includes two buildings, associated asphalt parking areas, and a small unpaved hillside area. Parcel UC-2 includes portions of Fisher Avenue and Robinson Street and is bounded on the north, east, and south by Parcel C and on the west by Parcel UC-1 and former Parcel A. Historical use of the southern portion of Parcel UC-2 is as a roadway (Fisher Avenue), and the northern portion is as a triangularly shaped parking lot. The property is mostly paved, except for the steep unpaved hillside bordering Fisher Avenue, which is covered by vegetation (Navy, 2015b).

C-1.4.1 Environmental Condition

Certain COCs remain in soil, soil vapor, and groundwater at Parcels UC-1 and UC-2 at levels and in conditions that the FFA Signatories have determined are consistent with the ROD Remedial Action Objectives. The COCs that remain in soil at Parcels UC-1 and UC-2 include naturally occurring metals (specifically, arsenic and manganese) and PAHs (Navy, 2009a,b). COCs for Parcels UC-1 and UC-2 in soil vapor that remain include

VOCs (specifically, benzene, chloroform, TCE, vinyl chloride and their degradation products; ERRG, 2014b). COCs in groundwater in Parcel UC-2 include carbon tetrachloride and chloroform and are not anticipated to be present at levels that pose a health risk from dermal exposure and inhalation to construction workers (Navy, 2009a,b). Notable environmental conditions are depicted on Figure C-4.

C-1.4.2 CERCLA Remedy

The FOST documents that the CERCLA remedy in Parcels UC-1 and UC-2 is in place (Navy, 2015b). The EPA, DTSC, and RWQCB have concurred with the FOST (USEPA, 2015c; DTSC, 2015; RWQCB, 2015a). Components of the remedy that remain to ensure that human health and environment are protected from potential long-term health risks include:

- Durable Covers over the entire Parcel to prevent contact with residual ubiquitous metals. The Parcels UC-1 and UC-2 Durable Cover is defined as hardscape (e.g., asphalt, building foundations, concrete pads, sidewalks, etc.) or two feet of clean imported soil fill in the RODs (Navy, 2009a and 2009b), RD (Navy, 2010a), and RAWP (ERRG, 2012b).
- Groundwater monitoring at Parcel UC-2 to verify that natural attenuation continues to progress and to meet the RGs defined in the UC-2 ROD (Navy, 2009a).
- Land use and activity restrictions and institutional controls, implemented through a CRUP and federal quitclaim deed, to prevent or minimize exposure to residual COCs in the soil, soil gas, and groundwater. The entire Parcel includes restrictions related to the Durable Cover.

The requirements for inspection, maintenance, and reporting of these components of the remedy are provided in the O&M Plan for Parcels UC-1 and UC-2 (Navy, 2013b), which may be revised from time to time. The O&M Plan requires that the owner conduct regular inspections and prepare an Annual Inspection Report to summarize the inspection findings for each year. These long-term O&M obligations are independent of the RMP requirements and it is the Owner's responsibility to comply with the most current version of the O&M Plan.

The radiological corrective actions in Parcels UC-1 and UC-2 are complete, and no radiological restrictions remain on Parcels UC-1 and UC-2. The CDPH issued the Radiological Unrestricted Release Recommendation for Parcels UC-1 and UC-2 in 2011 stating that Parcels UC-1 and UC-2 are suitable for unrestricted use with respect to radiological constituents (DTSC, 2011a).

C-1.4.3 Areas Subject to Special Protocols

The following areas on Parcels UC-1 and UC-2 are subject to Special Protocols as summarized in Section 4. A tabular summary of those areas subject to special protocols is presented in Table C-1.

C-1.4.3.1 Groundwater Management Areas

Carbon tetrachloride and chloroform have been detected in groundwater at Parcel UC-2 (remediation performance monitoring wells IR06MW54F and IR06MW55F) but have not been associated with an identified source (Figure C-4). Except for this localized area, Parcel UC-2 is upgradient of other areas of groundwater contamination at HPS. The Navy ROD for Parcel UC-2 selected monitored natural attenuation as the remedy for the low concentrations of carbon tetrachloride and chloroform in groundwater in the vicinity of groundwater remediation performance monitoring wells IR06MW54F and IR06MW55F. Groundwater is currently being monitored by the Navy in remediation performance monitoring wells IR06MW54F and IR06MW55F as a component of the Basewide Groundwater Monitoring Program. Soil vapor sampling results collected in this area in 2010 identified that concentrations were below the level that would pose a risk to potential future residential receptors via vapor intrusion under documented site conditions. Work in these areas must comply with standards and protocols as set forth in Sections 3.5, 3.6 and 4.3 of the RMP.

C-1.4.3.2 Soil Vapor Management Areas

Parcels UC-1 and UC-2 include ARICs for VOCs in soil vapor as identified on Figure C-4. Utility work in these areas must comply with standards and protocols as set forth in Section 4.4 of the RMP.

TABLE C-1

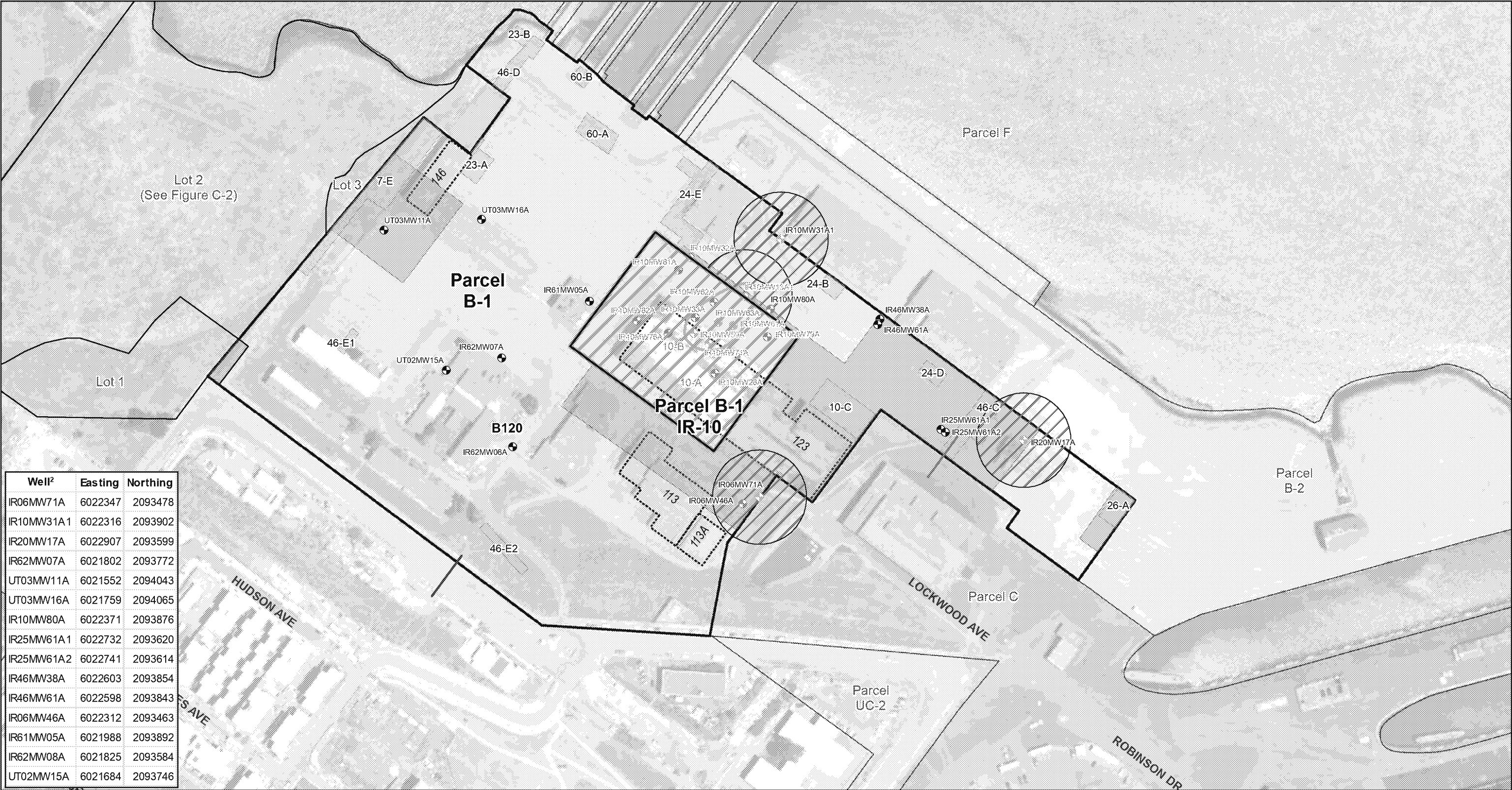
TABLE C-1
AREAS SUBJECT TO SPECIAL PROTOCOLS
Phase II Development Area
Former Hunters Point Shipyard, San Francisco, California

SPECIAL PROTOCOL	PARCEL CONDITION														
	Parcel B-1			IR-7/18 Lots 1 and 3			Parcel G			Parcel UC-1			Parcel UC-2		
	Soil	Soil Vapor	Groundwater	Soil	Soil Vapor	Groundwater	Soil	Soil Vapor	Groundwater	Soil	Soil Vapor	Groundwater	Soil	Soil Vapor	Groundwater
Areas Requiring Building Foundation Removal - Construction Worker Health and Safety (RMP Section 4.1)	✓					✓									
Soil with COCs above RGs or PSC (RMP Section 4.2.1)															
Residual Petroleum - NFA areas with restrictions (RMP Section 4.2.2.1)															
Residual Petroleum - NFA areas without restrictions (RMP Section 4.2.2.2)	✓		✓		✓										
Land Use Restriction Areas (RMP Section 4.2.3)							✓								
Groundwater Management Areas (RMP Section 4.3)			✓ ⁽²⁾						✓ ⁽²⁾						✓ ⁽²⁾
Soil Vapor Management Areas (RMP Section 4.4)		✓ ⁽¹⁾			✓ ⁽¹⁾			✓ ⁽¹⁾			✓ ⁽¹⁾			✓ ⁽¹⁾	

Notes

- (1) Note location of ARICs for VOCs in soil vapor on Figures C-1 through C-4. Owner must submit an Activity Specific Work Plan that addresses a soil vapor survey or planned vapor intrusion mitigation.
- (2) COCs remain in groundwater in remediation performance monitoring wells as documented in this Appendix. Development work within a certain radial distance from a well with COCs in groundwater as specified in the most current EPA Vapor Intrusion Guidance must review the current Navy Basewide Groundwater Monitoring data and follow the protocol specified in the RMP as appropriate to address vapor intrusion risk for the current conditions.

FIGURE C-1



Well ²	Easting	Northing
IR06MW71A	6022347	2093478
IR10MW31A1	6022316	2093902
IR20MW17A	6022907	2093599
IR62MW07A	6021802	2093772
UT03MW11A	6021552	2094043
UT03MW16A	6021759	2094065
IR10MW80A	6022371	2093876
IR25MW61A1	6022732	2093620
IR25MW61A2	6022741	2093614
IR46MW38A	6022603	2093854
IR46MW61A	6022598	2093843
IR06MW46A	6022312	2093463
IR61MW05A	6021988	2093892
IR62MW08A	6021825	2093584
UT02MW15A	6021684	2093746

Legend

- Basewide Groundwater Monitoring Program (BGMP) Well (RMP Section 3.6)
- Remediation Performance Monitoring Well (RPMW) (RMP Section 4.4.2)³
- Tar-Wrapped Fuel Lines**
 - In Place (Appendix C Section C-1.1.3.2.1)
- Asbestos-Wrapped Steam Lines**
 - In Place
- Requiring Foundation Removal Construction Worker Health & Safety (RMP Section 4.1)

Soil Management Areas (RMP Section 4.2)

- Petroleum NFA Site without Restrictions (RMP Section 4.2.2.2)

Groundwater Management Areas (RMP Section 4.3)

- TCE above RGs on 1/26/2016

Soil Vapor Management Areas

- Potential Vapor-Impacted Area in Proximity to RPMW (RMP Section 4.4.3)

- VOC Area Requiring Institutional Controls (ARICs) (RMP Section 4.4)
- Navy Parcel Boundary
- IR-10 (see Note 1)

Notes:

- The IR-10 area is not included in this RMP.
- Well coordinates are in CA State Plane Zone 3 feet.
- A remediation performance monitoring well is a Navy BGMP well that is used to monitor an active remedy.

VOC = volatile organic compound
NFA = no further action
TCE = trichloroethene

Sources

- Naval Installation Restoration Information Solution (NIRIS) database, 2017.
- Semiannual Groundwater Monitoring Report, CE2-Kleinfelder Joint Venture, December 2016.
- Draft Management and Monitoring Approach Sampling and Analysis Plan for Basewide Groundwater Monitoring Program, Trevet, December 2016.
- Revised Draft FOST for Parcel B-1, April 2017.
- Final RACR for Durable Covers in Parcel B-1, January 2017.
- Imagery provided by ESRI, 2016.

0 200 Feet

Parcel B-1 Environmental Conditions
Hunters Point Artist Project
San Francisco, CA

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Figure
C-1

FIGURE C-2



Legend

Basewide Groundwater Monitoring Program Well (RMP Section 3.6)

Soil Management Areas (RMP Section 4.2)

Petroleum NFA Site without Restrictions (RMP Section 4.2.2.2)

Soil Vapor Management Areas

VOC Area Requiring Institutional Controls (ARICs) (RMP Section 4.4)

Shoreline Revetment (RMP Section 3.7)

Lot 2 - Not part of this RMP

Navy Parcel Boundary

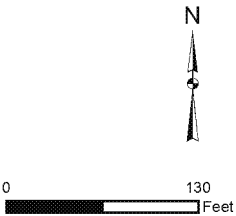
Notes:

Well coordinates are in CA State Plane Zone 3 feet.
VOC = volatile organic compound
NFA = no further action

Sources

- Naval Installation Restoration Information Solution (NIRIS) database, 2017.
- Semiannual Groundwater Monitoring Report, CE2-Kleinfelder Joint Venture, December 2016.
- Final FOST for Parcel B – IR Sites 7 and 18, February, 2013.
- Imagery provided by ESRI, 2016.

Well	Easting	Northing
IR07MW20A1	6021746	2094352
IR07MWS-2	6021653	2094269



Lots 1 and 3, IR 7/18 Environmental Conditions
Hunters Point Artist Project
San Francisco, CA

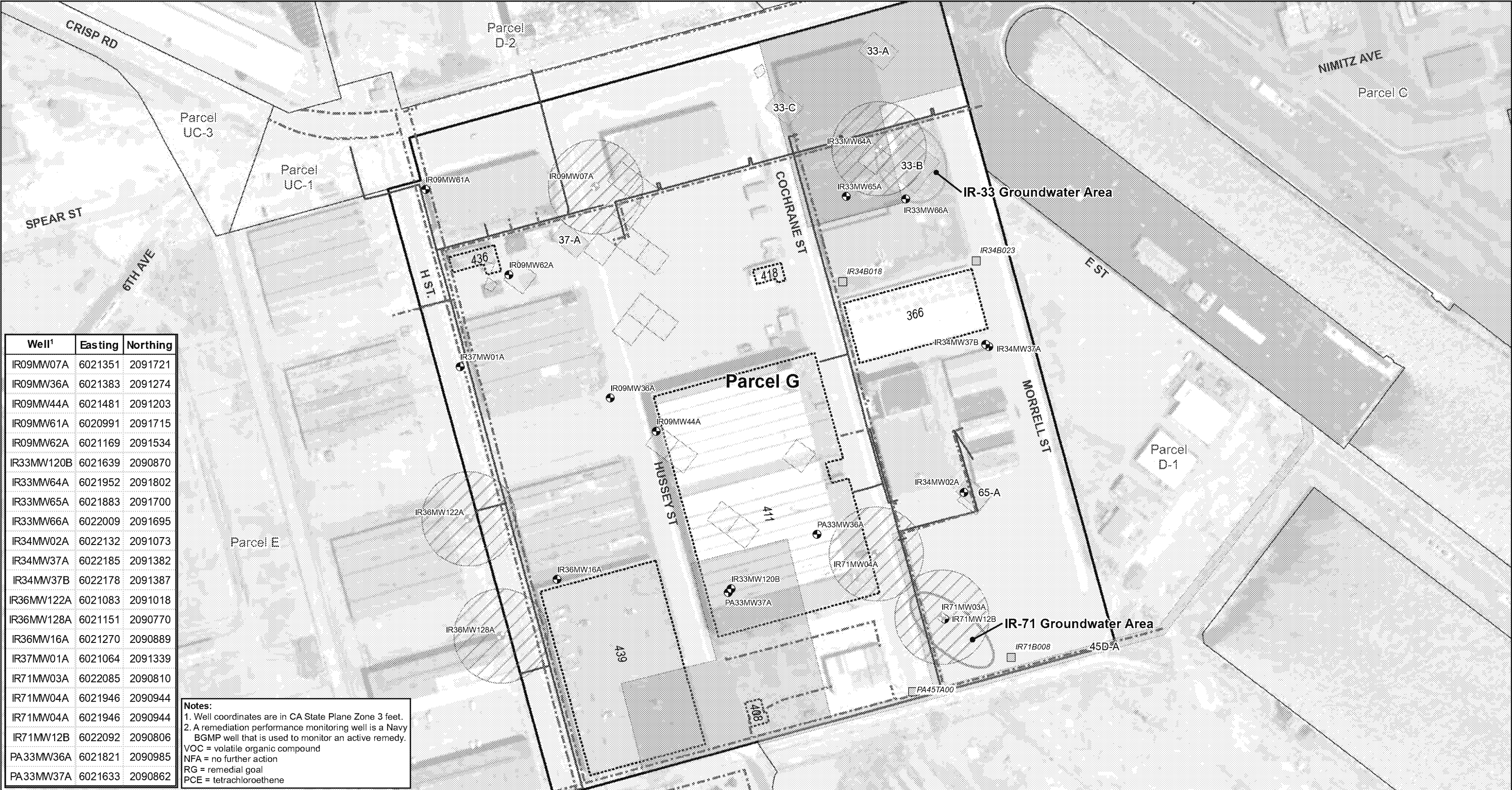
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October 2017

Figure
C-2

FIGURE C-3



Well¹	Easting	Northing
IR09MW07A	6021351	2091721
IR09MW36A	6021383	2091274
IR09MW44A	6021481	2091203
IR09MW61A	6020991	2091715
IR09MW62A	6021169	2091534
IR33MW120B	6021639	2090870
IR33MW64A	6021952	2091802
IR33MW65A	6021883	2091700
IR33MW66A	6022009	2091695
IR34MW02A	6022132	2091073
IR34MW37A	6022185	2091382
IR34MW37B	6022178	2091387
IR36MW122A	6021083	2091018
IR36MW128A	6021151	2090770
IR36MW16A	6021270	2090889
IR37MW01A	6021064	2091339
IR71MW03A	6022085	2090810
IR71MW04A	6021946	2090944
IR71MW04A	6021946	2090944
IR71MW12B	6022092	2090806
PA33MW36A	6021821	2090985
PA33MW37A	6021633	2090862

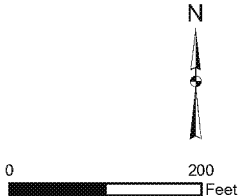
Notes:
1. Well coordinates are in CA State Plane Zone 3 feet.
2. A remediation performance monitoring well is a Navy BGMP well that is used to monitor an active remedy.
VOC = volatile organic compound
NFA = no further action
RG = remedial goal
PCE = tetrachloroethene

- Legend**
- Basewide Groundwater Monitoring Program (BGMP) Well (RMP Section 3.6)
 - Remediation Performance Monitoring Well (RMP Section 4.4.2)²
 - Soil Boring (NFA No Restrictions)
 - Requiring Foundation Removal Construction Worker Health & Safety (RMP Section 4.1)

- Tar-Wrapped Lines (status uncertain) (Appendix C Section C-1.3.3.2.1)
- Asbestos-Wrapped Steam Lines**
 - In Place
- Soil Management Areas (RMP Section 4.2)**
 - Petroleum NFA Site without Restrictions (RMP Section 4.2.2.2)
 - Land Use Restrictions (RMP Section 4.2.3)

- Groundwater Management Areas (RMP Section 4.3)**
 - Chloroform and carbon tetrachloride above RGs on 1/19/2016
 - PCE above RGs on 1/20/2016
- Soil Vapor Management Areas**
 - Potential Vapor-Impacted Area in Proximity to RPMW (RMP Section 4.4.3)
 - VOC Area Requiring Institutional Controls (ARICs) (RMP Section 4.4)

- Navy Parcel Boundary
- Sources**
 - Naval Installation Restoration Information Solution (NIRIS) database, 2017.
 - Semiannual Groundwater Monitoring Report, CE2-Kleinfelder Joint Venture, December 2016.
 - Draft Management and Monitoring Approach Sampling and Analysis Plan for Basewide Groundwater Monitoring Program, Trevet, December 2016.
 - Final FOST for Parcel G, June 2015.
 - Final RACR for Parcel G, March 2014.
 - Imagery provided by ESRI, 2016.



Parcel G Environmental Conditions
Hunters Point Artist Project
San Francisco, CA

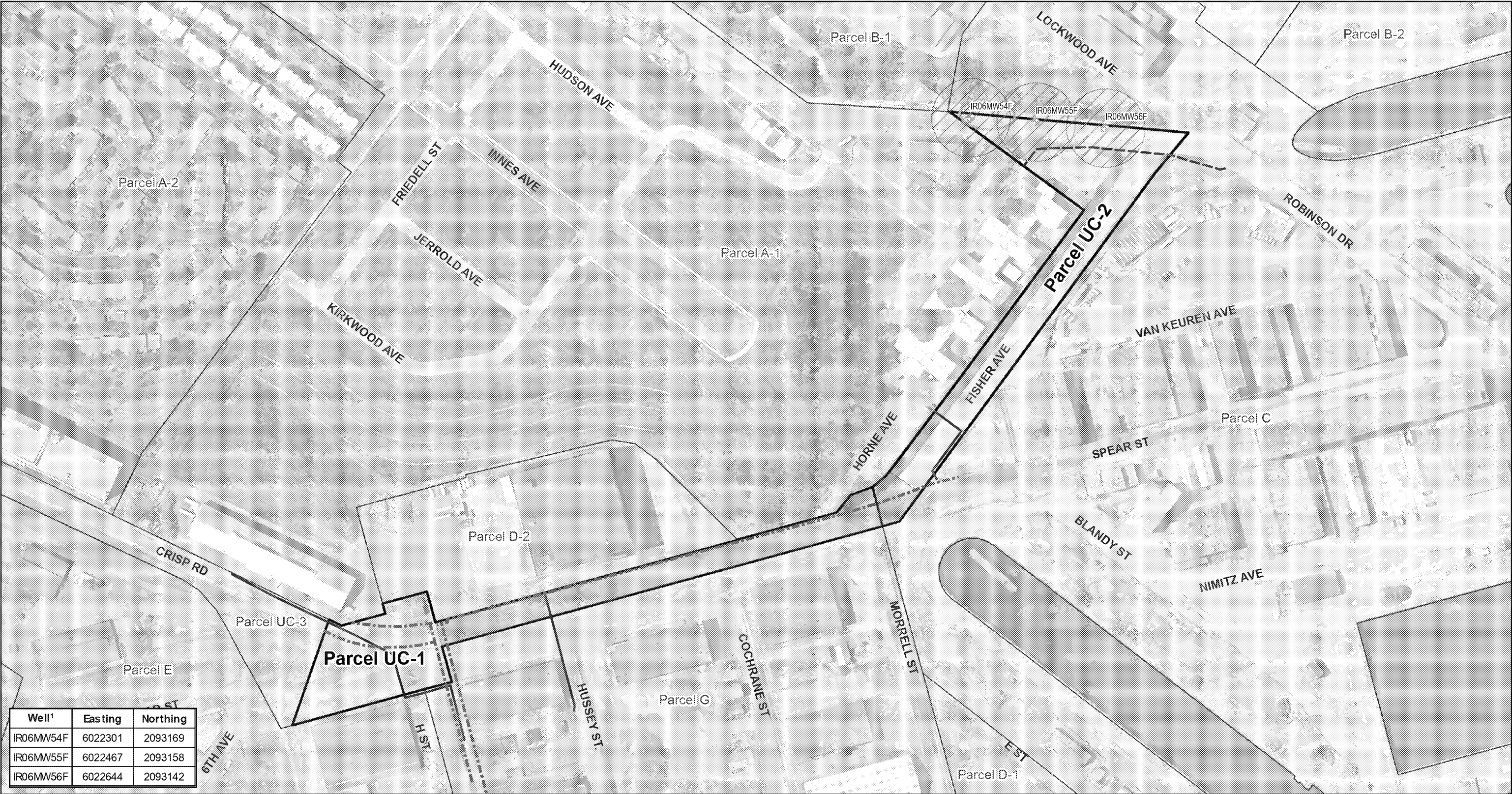
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October 2017

Figure
C-3

FIGURE C-4



Well¹	Easting	Northing
IR06MW54F	6022301	2093169
IR06MW55F	6022467	2093158
IR06MW56F	6022644	2093142

Legend

- Remediation Performance Monitoring Well (RMP Section 4.4.2)²
- Tar-Wrapped Lines (status uncertain)
- Asbestos-Wrapped Steam Lines
 - In Place
 - Unknown

Groundwater Management Areas (RMP Section 4.3)

- Chloroform and carbon tetrachloride above RGs on 1/20/2016

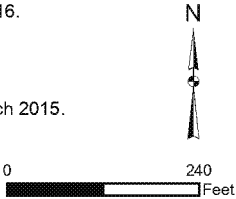
Soil Vapor Management Areas

- Potential Vapor-Impacted Area in Proximity to RPMW (RMP Section 4.4.3)
- VOC Area Requiring Institutional Controls (ARICs) (RMP Section 4.4)

Navy Parcel

Notes:
1. Well coordinates are in CA State Plane Zone 3 feet.
2. A remediation performance monitoring well is a Navy BGMP well that is used to monitor an active remedy.
ARIC = Area Requiring Institutional Controls
VOC = volatile organic compound
Basemap source: ESRI, 2014

Sources
- Naval Installation Restoration Information Solution (NIRIS) database, 2017.
- Semiannual Groundwater Monitoring Report, CE2-Kleinfelder Joint Venture, December 2016.
- Draft Management and Monitoring Approach Sampling and Analysis Plan for Basewide Groundwater Monitoring Program, Trevet, December 2016.
- Final FOST for Parcels UC-1 and UC-2, March 2015.
- Imagery provided by ESRI, 2016.



Parcels UC-1 and UC-2 Environmental Conditions

Risk Management Plan
Hunters Point Shipyard, San Francisco, CA

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WR1247D

October 2017

Figure
C-4

C-2. REFERENCES

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California Department of Public Health (CDPH), 2012a. Radiological Unrestricted Release Recommendation Memorandum for Parcel G. 30 March.

CDPH, 2012b. Radiological Unrestricted Release Recommendation Memorandum for Parcel B. 31 July.

CDPH, Environmental Management Branch, 2016. Reinstatement of Radiological Unrestricted Release Recommendations for buildings: 103, 113, 113A, 146, 130, 140, 351, 351A, 366, 401, and 439 in Parcel B and G, former Hunters Point Naval Shipyard. April 26.

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DTSC, 2015. DTSC Concurrence on Final Finding of Suitability to Transfer (FOST) for Parcels UC-1 and UC-2, Hunters Point Naval Shipyard, San Francisco, California. 6 February.

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CE2-Kleinfelder, 2015b. Groundwater Analytical Results Exceeding Remediation Goals or Trigger Levels, First Quarter 2015 (1Q2015), Hunters Point Naval Shipyard, San Francisco, California. 2 July.

CE2-Kleinfelder, 2016. Semiannual Groundwater Monitoring Report (January-June 2016), Hunters Point Naval Shipyard, San Francisco, California. December.

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- Engineering/Remediation Resources Group, Inc. (ERRG), 2010. Final Remedial Action Work Plan for Installation Restoration Sites 07 and 18 at Parcel B; Soil Hotspot Locations at Parcels B, D-1, and G; and Soil Stockpiles at Parcels D-1 and G, Hunters Point Naval Shipyard, July.
- ERRG, 2011. Final Remedial Action Completion Report for Soil Hotspot Locations at Parcels B, D-1, and G; and Soil Stockpiles at Parcels D-1 and G, Hunters Point Naval Shipyard, San Francisco, California. October.
- ERRG. 2012a. Final Remedial Action Completion Report for Installation Restoration Sites 7 and 18, Hunters Point Naval Shipyard, San Francisco, California. May.
- ERRG, 2012b. Final Remedial Action Work Plan for Parcels UC-1 and UC-2, Hunters Point Naval Shipyard, San Francisco, California. 4 June.
- ERRG, 2012d. Final Remedial Action Work Plan for Parcel B (Excluding Installation Restoration Sites 07 and 18), Hunters Point Naval Shipyard, San Francisco, California. 13 November.
- ERRG, 2014a. Final Addendum 1 to the Remedial Action Completion Report for Soil Hotspot Locations at Parcels B, D-1, and G and Soil Stockpiles at Parcel D-1 and G, Hunters Point Naval Shipyard, San Francisco, California. April.
- ERRG, 2014b. Final Technical Memorandum Soil Vapor Investigation in Support of Vapor Intrusion Assessment at Parcel UC-1, Hunters Point Naval Shipyard, San Francisco, California. 7 August.
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- ERRG and Shaw Environmental, Inc. (Shaw), 2011. Final Remedial Investigation/Feasibility Study Report for Parcel E-2. May 5.

- United States Department of the Navy (Navy), pending. Final Finding of Suitability to Transfer for Parcel G, Hunters Point Naval Shipyard, San Francisco, California. PENDING.
- Navy, pending. Final Explanation of Significant Differences to the Record of Decision for Parcel G, Hunters Point Shipyard, San Francisco, California. PENDING.
- Navy, pending. Final Finding of Suitability to Transfer (FOST) for Parcel B-1, Hunters Point Naval Shipyard, San Francisco, California. PENDING.
- Navy, 2007. Final Revised Feasibility Study for Parcel D, Hunters Point Shipyard, San Francisco, California. 30 November.
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- Navy, 2009c. Final Record of Decision for Parcel G, Hunters Point Shipyard, San Francisco, California. 18 February.
- Navy. 2009d. Final Amended Parcel B Record of Decision, Hunters Point Shipyard, San Francisco, California. 14 January.
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- Navy, 2010c. Parcels D-1 and G Groundwater Treatability Study Technical Report, IR 09, IR-33, and IR-71, Hunters Point Shipyard, San Francisco, California. March.
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- Navy, 2015b. Final Finding of Suitability to Transfer for Parcels UC-1 and UC-2, Hunters Point Naval Shipyard, San Francisco, California. 25 March.
- Navy, 2015c. Final Finding of Suitability to Transfer for Parcel G, Hunters Point Naval Shipyard, San Francisco, California. June.
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- RWQCB, 2011c. No Further Action for Area of Concern (AOC) 45D-A and Borings of Concern (BOCs) IR44B009, PA45TA00, and IR71B008, Parcels D-1 and G, Hunters Point Naval Shipyard, San Francisco County. 3 August.
- RWQCB, 2011d. No Further Action for Area of Concern (AOC) 33-A, Parcel G, Hunters Point Naval Shipyard, San Francisco County. 4 August.
- RWQCB, 2011e. No Further Action for Area of Concern (AOC) 33-B, Parcel G, Hunters Point Naval Shipyard, San Francisco County. 5 August.
- RWQCB, 2011f. No Further Action for Boring of Concern (BOC) IR34B023, Parcel G, Hunters Point Naval Shipyard, San Francisco County. 7 September.
- RWQCB, 2011g. No Further Action for Area of Concern (AOC) 65-A, Parcel G, Hunters Point Naval Shipyard, San Francisco County. 5 October.
- RWQCB, 2011h. No Further Action for Area of Concern (AOC) 33-C, Parcel G, Hunters Point Naval Shipyard, San Francisco County. 6 October.
- RWQCB, 2012a. No Further Action for Areas of Concern (AOCs) 07-A, 07-B, 07-C, 07-D, 07-E, and 18-B, Parcel B, Hunters Point Naval Shipyard, San Francisco County. January 30.

- RWQCB, 2012b. No Further Action for Area of Concern (AOCs) 07-F and 18-A, Parcel B, Hunters Point Naval Shipyard, San Francisco County. February 2.
- RWQCB, 2012c. No Further Action for Area of Concern (AOC) 10-A, Parcel B, Hunters Point Naval Shipyard, San Francisco County. February 7.
- RWQCB, 2012d. No Further Action for Area of Concern (AOC) 10-B, Parcel B, Hunters Point Naval Shipyard, San Francisco County. February 21.
- RWQCB, 2012e. No Further Action for Area of Concern (AOC) 10-C, Parcel B, Hunters Point Naval Shipyard, San Francisco County. February 22.
- RWQCB, 2012f. No Further Action for Area of Concern (AOC) 23-A, Parcel B, Hunters Point Naval Shipyard, San Francisco, San Francisco County. June 26.
- RWQCB, 2012g. No Further Action for Area of Concern (AOC) 46-D, Parcel B, Hunters Point Naval Shipyard, San Francisco County. July 23.
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- RWQCB, 2013d. No Further Action for Area of Concern (AOC) 23-B including one unnamed UST, Parcel B, Hunters Point Naval Shipyard, San Francisco County. February 25.
- RWQCB, 2013e. No Further Action for Area of Concern (AOC) 60-A, Parcel B, Hunters Point Naval Shipyard, San Francisco County. February 25.
- RWQCB, 2013f. No Further Action for Area of Concern (AOC) 60-B, Parcel B, Hunters Point Naval Shipyard, San Francisco County. February 27.
- RWQCB, 2013g. No Further Action for Area of Concern (AOC) 61-A, Parcel B, Hunters Point Naval Shipyard, San Francisco County. February 28.
- RWQCB, 2013h. No Further Action for Area of Concern (AOC) 46-E1, Parcel B, Hunters Point Naval Shipyard, San Francisco County. March 4.

- RWQCB, 2013i. No Further Action for Area of Concern (AOC) 46-E2, Parcel B, Hunters Point Naval Shipyard, San Francisco County. March 6.
- RWQCB, 2013j. No Further Action for Area of Concern (AOC) 61-B, Parcel B, Hunters Point Naval Shipyard, San Francisco County. June 26.
- RWQCB, 2015a. Water Board Concurrence on Final Finding of Suitability to Transfer for Parcels UC-1 and UC-2, Hunters Point Naval Shipyard, San Francisco, February 3.
- RWQCB, 2015b. No Further Action for Area of Concern (AOC) 24-E, Parcel B, Hunters Point Naval Shipyard, San Francisco County. March 25.
- Sealaska Environmental Services, LLC (Sealaska), 2013. Final Technical Memorandum, Soil Vapor Investigation In Support Of Vapor Intrusion Assessment, Parcels B, D-1, G, and UC-2, Hunters Point Naval Shipyard, San Francisco, California. March.
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- USEPA, 2014a. Letter Re: EPA Concurrence with the Remedial Action Completion Report for Durable Cover, Groundwater Treatment, and Institutional Controls for Parcel G at the Hunters Point Naval Shipyard, dated March 26, 2014. 29 September.
- USEPA, 2014b. Letter Re: Final Remedial Action Completion Report (RACR) for Soil Hotspot Locations at Parcels B, D-1, and G and Soil Stockpiles at Parcel D-1 and G, dated October 7, 2011, and Addendum One to this RACR, dated April 4, 2014. 30 September.
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- USEPA, 2015c. Letter Re: Concurrence on Final Finding of Suitability to Transfer for Parcels UC-1 and UC-2, Hunters Point Naval Shipyard, San Francisco, California. 19 February.

APPENDIX D

Annual Report Form

**RISK MANAGEMENT PLAN (RMP)
ANNUAL REPORT FORM FOR
[INSERT PROPERTY ADDRESS]
[INSERT DATE]
SAN FRANCISCO, CALIFORNIA**

Property Owner:	Owner Contact Information:	
Report Preparer Name and Affiliation:	Report Preparer Contact Information:	
Date and Time of Inspection:	Weather and tidal conditions at time of inspection:	
Reporting Period From _____ to _____		
INTRODUCTION		
<p>This Annual Report Form shall be used to prepare the Annual Report to satisfy the annual reporting requirement in the RMP. An Annual Report is required to provide the necessary information to verify that field activities and related risk management measures that have been conducted during the reporting period meet the requirements of the RMP. The Annual Report and supporting documentation should include field notes and photographs taken at the time of the inspection to document the condition of the site at the time of the inspection.</p> <p>This Annual Report Form has been designed to report on the RMP <i>Restricted Activities Authorized with Conditions</i> (Section 2.1) and the required <i>Risk Management Measures</i> (Sections 3 and 4). This Annual Report is organized into Section 1, which is broken into three reporting categories (i.e. 1A, 1B and 1C), and Section 2. Section 1 provides documentation for <i>Restricted Activities Authorized with Conditions</i> and <i>Risk Management Measures</i> including 1A for reporting the Activity Description, 1B for reporting General Site Management Activities, and 1C for reporting Soil Management Activities. Section 2 provides a summary of action items that are planned and must be completed to remain in compliance with the RMP.</p>		
Section 1: Restricted Activities Authorized with Conditions		
SECTION 1A: ACTIVITY DESCRIPTION:		
Indicate which Restricted Activities Authorized with Conditions (See RMP Section 2.1.) and Risk Management Measures (See RMP Sections 3 and 4) that have been completed during the reporting period:	<input type="checkbox"/> Any activity occurring on land that is less than one (1) acre in size (contiguous area) and involves movement of soil to the surface from below the surface of the land, or penetrates the Durable Cover, including, but not limited to excavation, grading, or other movement of soil.	Description of activity (note the date that the activity occurred, a detailed description of the activity, and attach photographs and additional sheets as necessary):
	<input type="checkbox"/> Excavation of soil from one location and placement at any other location on the Property so long as it is placed beneath an approved Durable Cover (e.g., 2 feet of clean fill, asphalt cover, sidewalk, or street)	Description of activity (note the date that the activity occurred, a detailed description of the activity, and attach photographs and additional sheets as necessary):

	<input type="checkbox"/> After dedication and acceptance of public rights-of-way by the City, excavation in the public rights-of-way for purpose of installing, repairing, and maintaining the public rights-of-way, utilities and surface/subsurface facilities that are connected to the utilities and related appurtenances.	Description of activity (note the date that the activity occurred, a detailed description of the activity, and attach photographs and additional sheets as necessary):
	<input type="checkbox"/> Demolition or removal of “hardscape” (e.g., concrete or asphalt roadways, parking lots, building foundations, and sidewalks) for a contiguous area less than one (1) acre in size.	Description of activity (note the date that the activity occurred, a detailed description of the activity, and attach photographs and additional sheets as necessary):
	<input type="checkbox"/> In landscaped areas/parks: Removal or temporary removal of the durable cover (two feet of clean fill). Segregation of the durable cover material from HPS Bayfill/Native Soil underneath. Reinstallation of the segregated durable cover material or installation of a new durable cover (two feet of clean imported fill) over the HPS Bayfill/Native Soil.(Section 3.3)	Description of activity (note the date that the activity occurred, a detailed description of the activity, and attach photographs and additional sheets as necessary):
	<input type="checkbox"/> Placement of soil from Parcel A underneath a durable cover as part of grading, excavation or other soil movement activities.(Section 3.3)	Description of activity (note the date that the activity occurred, a detailed description of the activity, and attach dated photographs and additional sheets as necessary):
	<input type="checkbox"/> Excavation of trenches, potholes, or other movement of soil from the subsurface to the surface in support of the installation of new below grade utilities, foundations, or other foundational structures (e.g., sewer lines, water lines, storm water pump station wet wells, pile caps and/or grade beams, fences, etc.).	Description of activity (note the date that the activity occurred, a detailed description of the activity, and include square footage of area undergoing removal/replacement and attach photographs and additional sheets as necessary):
	<input type="checkbox"/> Demolition of existing below grade, at grade, or above grade structures.	Description of activity (note the date that the activity occurred, a detailed description of the activity, and include square footage of area undergoing

		removal/replacement and attach photographs and additional sheets as necessary):
	<input type="checkbox"/> Grading for the purpose of raising and/or lowering site grade, creation of building pads, fine grading activities in support of road installation, and associated excavating, loading, hauling, stockpiling and/or compacting soil.	Description of activity (note the date that the activity occurred, a detailed description of the activity, and attach photographs and additional sheets as necessary):
	<input type="checkbox"/> Pre-drilling for pile installation including drilling pilot holes through fill material prior to the installation of foundation piles.	Description of activity (note the date that the activity occurred, a detailed description of the activity, and attach photographs and additional sheets as necessary):
	<input type="checkbox"/> Any other Vertical Development activities in an area of the Site in which Horizontal Development has been completed as authorized by the Completion Report prepared for the Horizontal Development of the area and approved by the FFA Signatories in accordance with RMP Section 3.2.	Description of activity (note the date that the activity occurred, a detailed description of the activity, and attach photographs and additional sheets as necessary):
SECTION 1B: GENERAL SITE MANAGEMENT ACTIVITIES: This section should note any areas that are out of compliance and an explanation and a statement of planned steps to return to compliance		
Was an environmental health and safety plan prepared for all work indicated in Section 1A, above?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Attach copy of plan(s).
Was the Section 1A work conducted in accordance with the Dust Control Plan (DCP) (Appendix G)?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Description of dust control plan implementation such as watering or other dust control methods, including any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance (attach photographs and additional sheets as necessary):
Were the DCP monitoring locations and monitoring criteria submitted and approved by SFDPH for all work indicated in Section 1A, above?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Attach copy of the monitoring locations and criteria and SFDPH approval. Attach copies of monitoring data. Include a description of any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance.
Was an Asbestos Dust Mitigation Plan prepared for all work indicated in Section 1A, above?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Attach copy of plan and monitoring data collected in accordance with the plan for each activity conducted above. Include a description of any

		areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance.
Was a storm water pollution prevention plan prepared for all work indicated in Section 1A, above?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Attach copy of plan and monitoring data collected in accordance with the plan for each activity conducted above. Include a description of any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance.
Were appropriate site-specific measures for access control implemented?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Description of access control implementation, including any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance (attach photographs and additional sheets as necessary):
Were appropriate site-specific measures to protect shoreline improvements and/or monitoring wells implemented?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	Description of shoreline/monitoring well protection measures, including any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance (attach photographs and additional sheets as necessary):
SECTION 1C: SOIL MANAGEMENT ACTIVITIES: This section should note any areas that are out of compliance and an explanation and a statement of planned steps to return to compliance		
For all soil from Parcel A, HPS Bayfill, and Native Soil that was stockpiled on site were all soil stockpile management protocols complied with as required in the DCP (Appendix G)?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Description of activity, including any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance (attach photographs and additional sheets as necessary):
For all soil management activities indicated in Section 1A, was surplus soil disposed off-site?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, please attach copies of waste profile, waste manifest, name, address and contact of disposal facility. If no, please describe any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance.
For all soil management activities indicated in Section 1A, was soil transported and placed in an on-site location other than its place of origin?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, describe the quantity of soil, origin of soil, location of placement. If no, please describe any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance:

<p>For any activities indicated in Section 1A, was soil imported to the site for use as fill material?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<p>If yes, specify the date of the FFA approved Soil Importation Plan (SIP) that guided this activity. Describe the quantity, source/origin of soil, location of placement, attach soil chemical profile, provide letter certifying that the imported soil meets the soil import criteria specified in the SIP:</p> <p>If no, please describe any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance:</p>
<p>Indicate any unexpected and/or unknown conditions encountered during excavation activities:</p>	<input type="checkbox"/> Evidence of soil contamination (strong odor, visible oily liquid, discolored or stained soil, etc.)	<p>Describe condition and action taken, including any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance (attach photographs and additional sheets if necessary):</p>
	<input type="checkbox"/> Undocumented structures (e.g. underground storage tanks, buried sumps, oil water separators, refractory brick, pipelines, etc.)	<p>Describe condition and action taken, including any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance (attach photographs and additional sheets if necessary):</p>
	<input type="checkbox"/> Abrasive blast material	<p>Describe condition and action taken, including any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance (attach photographs and additional sheets if necessary):</p>
	<input type="checkbox"/> Radiological devices (e.g. radium dials)	<p>Describe condition and action taken, including any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance (attach photographs and additional sheets if necessary):</p>

	<input type="checkbox"/> Free phase liquid floating on the groundwater (e.g., floating oil)	Describe condition and action taken, including any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance (attach photographs and additional sheets if necessary):
If Unexpected Conditions were encountered, were the procedures outlined in the Unexpected Condition Response Plan implemented?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Attach Closure Report. The Closure Report should include any areas of non-compliance and an explanation of the steps and timeline that will be taken to return to compliance.

SECTION 2: COMPLIANCE ACTIONS TO BE COMPLETED: *This Section should be used to describe all current points of non-compliance and unresolved conditions, including remaining unresolved issues that were previously reported in previous annual RMP reports, and the plan for bringing the item back into compliance. For land where a Durable Cover is absent, the follow up action description should identify the date the previous Durable Cover was removed and the target date for re-installation.*

FOLLOW UP ACTION DESCRIPTION:	Responsible Party (Owner, Tenant, Contractor, or Developer)	Target Completion Date:	Actual Completion Date:
1. Item 1 description: 2. Item 2 description: 3. Item 3 description: 4. Item # description:			

Certification:

I certify that the above information is true and correct to the best of my knowledge and I understand that submittal of this form satisfies the annual reporting as specified in the RMP.

 Owner (Signature)

 Registered Professional (Signature)

 Name (Printed)

 Name (Printed)

 Date

 Date

Professional Stamp or Seal

APPENDIX E

Unexpected Condition Response Plan

UNEXPECTED CONDITION RESPONSE PLAN

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FLOWCHARTS

- E-1: Unexpected Condition Flowchart**
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E-1. UNEXPECTED CONDITIONS – APPROACH

This Unexpected Condition Response Plan (UCRP) addresses the discovery of Unexpected Conditions during development activities within the Property. Although investigation and remediation has already been implemented by the Navy and an approved remedy is in place, Unexpected Conditions could potentially be encountered during the course of development. An Unexpected Condition is a condition observed in the soil, soil vapor, sediment and/or groundwater that indicates the potential for hazardous substances and/or petroleum substances to exist beneath the Property at a location that has not previously been identified, characterized, or remediated by the Navy. By way of example, Unexpected Conditions may include visibly discolored soil and/or contaminated groundwater in an area not previously identified by the Navy, soil and/or groundwater exhibiting a strong chemical odor in an area not previously identified by the Navy, unexpected subsurface structures (e.g., pits, sumps, underground storage tanks, etc.), radioactive materials, material potentially presenting an explosive hazard (MPPEH), and/or other visual or olfactory evidence of a historical release at a location not previously identified by the Navy.

This UCRP establishes protocols for the assessment and response to the discovery of an Unexpected Condition and for a path forward such that development activities can continue safely and timely within the context of the approved remedy. The UCRP protocols provide for initial oversight by and consultation with the San Francisco Department of Public Health (SFPDH); for notification to and consultation with the Federal Facility Agreement (FFA) Signatories; and for possible longer-term oversight by the FFA Signatories depending on the circumstances and nature of the response. As a component of the Site-specific health and safety training that will be required of equipment operators and site workers, instruction will be given on how to identify and respond to potential Unexpected Conditions. Details of health and safety training, including additional onsite protocols for identification and handling of potentially hazardous materials, will be provided in the Site-specific Environmental Health and Safety Plan (EHSP), an outline for which is provided in Appendix F to this RMP. Training will include the recognition of visual and olfactory cues and radioactive materials, munitions, or other regulated objects that may be encountered during grading activities (e.g., underground storage tanks, sumps, pits).

This UCRP is intended to fulfill the requirements of Article 31 of the San Francisco Health Code (<http://www.amlegal.com/nxt/gateway.dll/California/health/article31>

hunterspointshipyard?f=templates\$fn=default.htm\$3.0\$vid=amlegal:sanfrancisco_ca)
for preparation of an unknown contaminant contingency plan. The Owner may address Unexpected Conditions by following the steps outlined in this UCRP; however, at any time after the discovery of an Unexpected Condition, the Owner may elect to request the Navy to take responsibility for the condition. In addition, under specified circumstances the UCRP requires that the Owner consult with the FFA Signatories to determine whether a new CERCLA action by the Navy is required. If the Navy takes responsibility for the condition, the Owner must suspend all work at the location of the condition pending completion of Navy response to allow the Navy adequate access to implement the response.

E-2. RESPONSE PLAN

This Appendix identifies how Unexpected Conditions shall be addressed, the general approach of which is presented in the attached Flowchart E-1. The primary objectives outlined in Flowchart E-1 are to: i) provide initial notification of and response to the discovered condition to the appropriate agencies; ii) assess if the Unexpected Condition is a Category 1 Condition (described below); iii) make a preliminary determination as to whether the condition qualifies as a potential Category 2 Condition; iv) prescribe the collection and analysis of initial samples; and v) determine whether any response action is required. A Category 2 Condition for which a response action is required will then follow the course of action specified in Flowcharts E-2 (pertaining to petroleum substances only) and E-3 (pertaining to hazardous substances or hazardous substances comingled with petroleum substances).

E-2.1 Initial Assessment Procedures

Upon the discovery of a potential Unexpected Condition, the Owner shall suspend work and immediately notify the Site Safety and Health Officer (SSHO). The SSHO will assist the Owner with the initial assessment procedures described herein to ensure that work proceeds in a safe manner.

After notifying the SSHO, the Owner must first conduct an initial assessment to identify the nature of the condition. The nature of the condition will be described as one of two categories of conditions, as follows:

- **Category 1 Condition:** A Category 1 Condition could be an immediate hazard to construction workers and warrants coordination between the developer, the SFDPH, and the FFA Signatories. Category 1 Conditions include radioactive materials and MPPEH. By way of example, radioactive materials include buried luminescent dials, radioactive aircraft deck markers, luminescent gauges and signs, and sandblast grit. MPPEH materials that might be found include empty shell casings, discarded spent military munitions, and munitions debris containing chemical residue.
- **Category 2 Condition:** A Category 2 Condition is less likely to represent an immediate hazard to construction workers and warrants coordination with the SFDPH in consultation with the FFA Signatories, as appropriate. By way of example, Category 2 Conditions include hazardous substances and/or petroleum

substances in soil, soil vapor, and/or groundwater. A Category 2 Condition may involve hazardous substances only, petroleum substances only, or a comingled condition of both. The preliminary determination will be made based on initial observations, field screening, and/or laboratory analyses, as described in Section E-2.2 of this Appendix. As appropriate, initial assessment of the Unexpected Condition could also include excavation and segregation of soil that contains visual or olfactory evidence of hazardous or petroleum substances to provide an indication of the magnitude and geographic extent of the condition.

If the condition is determined to be a Category 1 Condition, the Owner will stop work, secure the area, notify the SFDPH and FFA Signatories within 24 hours of the determination that the condition is a Category 1 Condition, and Consult with FFA signatories to determine the appropriate response action. In the case of radioactive materials, the Owner will consult with SFDPH and FFA signatories to determine the appropriate response and may request the Navy to take appropriate action. In the case of MPPEH, the Owner will consult with SFDPH and FFA signatories to determine the appropriate response, and, in the case of suspected unexploded ordnance, notify the San Francisco Police Department Bomb Squad to take appropriate action. In either case, the FFA Signatories and the SFDPH may require that a response plan be submitted for review and approval prior to initiating the action. This process is documented in Flowchart E-1, Boxes 1, 1B, and 1C. Although work will be stopped at the location of the discovered Condition until an approved response action is completed, work may proceed at other locations not affected by the Condition, unless otherwise directed by the Navy, under the guidance of the Risk Management Plan (RMP).

If the Unexpected Condition is determined to be a Category 2 Condition, the Owner will notify the SFDPH and the FFA Signatories of the discovery within 24 hours of the determination that the Condition is a Category 2 Condition. Following the notification, the Owner will proceed with the initial assessment to determine the nature of the Condition. This process is documented in Flowchart E-1, Boxes 1A, 2, 2A, and 2B.

The initial assessment actions will be performed in accordance with applicable federal and state laws and regulations and the Site-specific EHSP and appropriate measures will be undertaken to ensure that assessment activities will be conducted in a safe manner. The SSHO will be responsible for performing activity hazard analyses, evaluating any change in site conditions, and modifying the EHSP accordingly. The SSHO has the authority to stop work if an unsafe condition arises.

E-2.2 Category 2 Condition Assessment Procedures

Following the notification of the initial discovery and upon concurrence from the SFDPH and the FFA Signatories, the Owner will proceed with further assessment of a Category 2 Condition until the condition can be classified as a hazardous substance condition, petroleum substance condition, or a co-mingled condition. The assessment procedures are documented in Flowchart E-1, Boxes 2, 2A, and 2B. Assessment work shall be conducted by a competent and Registered Professional.

The assessment may include the use of one or more field screening instruments: organic vapor monitor (OVM), photoionization detector (PID) x-ray fluorescence (XRF), gamma ray spectrometer, etc., physical observation (visual and olfactory characteristics), and sampling and chemical testing of the exposed affected media (soil, soil gas, groundwater, sediment, etc.). The assessment of the Condition may also include excavation and segregation of soil that contains visual or olfactory evidence of contamination to provide an indication of the magnitude and geographic extent of the Condition. In the event that some amount of excavation will occur, the Owner will follow the soil management protocol specified in the RMP (Sections 3.4 and 4.2). Field documentation will be generated that describes the location and type of the affected media, describes samples collected (number, location, type), conveys results of any field screening (OVM, PID, XRF, etc.) results, provides volume estimates of excavated/stockpiled material, and describes stockpile control measures.

The samples will be collected in accordance with industry standard protocols and collection procedures and regulatory agency guidance documents as identified by the competent and licensed professional overseeing the work. A minimum of one investigation sample and corresponding quality control (QC) samples (duplicate, travel blank, equipment blank, etc.) will be collected for each media (liquid in object, soil, sediment, soil vapor, or groundwater) that is suspected to be impacted. In addition to primary samples, duplicate samples and other applicable QC samples will be collected and submitted for analysis. As an initial screen, collected samples may be analyzed for the following constituents:

- Volatile organic compounds (VOCs), including fuel oxygenates by EPA Test Method 8260B or approved equivalent;
- Semi-volatile organic compounds (SVOCs), including polycyclic aromatic hydrocarbons (PAHs) by EPA Test Method 8270C or approved equivalent;

- CAM 17 Metals by EPA Test Method 6010B/7400 or approved equivalent;
- Pesticides by EPA Test Method 608 or EPA Test Method 8081A or approved equivalent;
- Polychlorinated biphenyls (PCBs) by EPA Test Method 608 or EPA Test Method 8082 or approved equivalent;
- TPH-gasoline range organics (TPH-gasoline) by EPA Test Method 8015B or approved equivalent;
- TPH-diesel range organics (TPH-diesel) by EPA Test Method 8015B or approved equivalent;
- TPH-motor oil range organics (TPH-motor oil) by EPA Test Method 8015B or approved equivalent; and
- Radionuclides radium-226 and cesium-137 by EPA Methods 903.1 and 901.1 or approved equivalent.

Analyses will be selected to correspond with the suspected constituents of potential concern (COPCs) at the location being assessed. Conditions that will be considered in selecting the analysis include previous work conducted by the Navy at the location, known conditions as documented in Navy reports for the location, history of hazardous substance and/or petroleum use at the location as documented by the Navy, field observations, and other anecdotal information. The results of the initial sampling will be compared to the Petroleum Program Strategy Preliminary Screening Criteria (PSC) and/or applicable Record of Decision (ROD) remediation goals. In the event that a constituent is detected that is not listed in the Petroleum Program Strategy PSC and/or applicable ROD remediation goals, the most recent version of the EPA's Regional Screening Levels (RSLs) and DTSC-modified screening levels will be used. Evaluation of the analytical results will allow the Owner to make an initial determination whether the Condition is:

1. A Condition that does not require further response or regulatory oversight; or,
2. A petroleum Condition that requires further evaluation and response; or,
3. A hazardous substance/comingled Condition that requires further evaluation and response.

Based on the evaluation of the results of the chemical testing, the Owner will then inform the SFDPH and the FFA Signatories of its findings, conclusions, and recommendations (See Flowchart E-1, Boxes 2B and 3). If sampling and analysis is conducted without a FFA signatory approved QA/QC plan, the results will be subject to acceptance by the FFA signatories. The determination will be made, in summary, as follows:

No Further Response. No further response or regulatory oversight is required if: i) the Condition is a petroleum substance Condition; ii) petroleum constituents in samples are below Tier 1 Petroleum PSC; and iii) the Condition is not a subsurface object or structure (Flowchart E-1, Boxes 4, 4A, 4B, and 4C). In addition, no further response or regulatory oversight is required if: i) the Condition is a hazardous substance/petroleum substance co-mingled Condition; ii) the hazardous substances in samples are below ROD remediation goals or RSL if not listed in the ROD; iii) any petroleum constituents are beneath Tier 1 Petroleum PSC; and iv) the Condition is not a subsurface object or structure. In such cases, the Owner shall notify SFDPH and the FFA Signatories of its findings (including analytical results), prepare and submit a Closure Report to the SFDPH and FFA Signatories, and upon approval of the Closure Report by the SFDPH and FFA Signatories proceed with redevelopment work under the guidance of the RMP (Flowchart E-1, Boxes 5, 5A, 5B, and 5C).

Additional Petroleum Evaluation and Response. Additional evaluation and response is required if: i) the Condition is a petroleum substance Condition; and ii) petroleum substances in samples are above Tier 1 Petroleum PSC; or iii) the Condition is a subsurface object or structure (Flowchart E-1, Boxes 4, 4A, 4D, and 4E). If in the course of evaluating the Unexpected Condition, the soil exhibits a total TPH concentration equal or greater than the Navy's petroleum Source Criterion for soil (3,500 mg/kg total-total petroleum hydrocarbons), the soil will be managed as if it contains separate-phase petroleum product. In such cases, the Owner shall notify the SFDPH and the FFA Signatories of its findings (including analytical results) and proceed with the evaluation and response in conjunction with the development activities as described in Section E-3 below and as identified in Flowchart E-2.

Additional Hazardous Substance Evaluation and Response. Additional evaluation and response is required if: i) the Condition is a hazardous substance/petroleum substance co-mingled Condition; ii) the concentration of the hazardous substances in samples are above applicable ROD remediation goals or RSL if not listed in the ROD; or iii) the Condition is a subsurface object or structure. In such cases, the Owner shall notify the

SFDPH and the FFA Signatories of its findings (including analytical results) and proceed with the evaluation and response in conjunction with the development activities as described in Section E-4 below and as specified in Flowchart E-1, Box 5, 5A, 5D, 5E, and Flowchart E-3.

E-3. PETROLEUM SUBSTANCE CONDITION

If the Owner, the SFDPH, and FFA Signatories have determined that the Unexpected Condition is a petroleum substance Condition, evaluation and response work will proceed following the process outlined in Flowchart E-2. In general, all work will comply with the Preliminary Screening Criteria and Petroleum Strategy (Shaw, 2007). Work will occur under the oversight of the RWQCB with notification to and consultation with the SFDPH as appropriate. Completion of petroleum substance evaluation and response under this UCRP will be documented in a Site Closure Report submitted for the RWQCB review and approval or, under certain circumstances identified below, preparation of a condition-specific CAP may be necessary, with RWQCB review and approval, in consultation with the SFDPH.

If the Unexpected Condition encountered is a physical object(s) determined to contain or have contained petroleum substances only, including such objects as a UST, pipelines, sump, drum or other containers, the object(s) will be removed in consultation with the RWQCB (Flowchart E-2, Box 2B), and in accordance with applicable SFDPH permitting procedures. Upon removal of the object(s), the surrounding material will be assessed for visual evidence, olfactory evidence, and with field instruments for evidence of petroleum substances. Affected material will be designated as such on the basis that it appears discolored, as compared to surrounding Bay Fill/native soil, and it exhibits a chemical odor, and field monitoring instruments register a concentration that exceeds levels typical of Bay Fill/Native soil. Removal of the affected material will proceed as presented in Section E-3.1 and Flowchart E-2, Box 2A.

If there is no evidence of additional contamination in the excavation, other than the removed physical object, final confirmation soil samples from the excavation will be collected. Final confirmation soil samples will be collected for analysis in accordance with the procedures specified in the Petroleum Corrective Action Plan (PCAP). The collected soil samples will be analyzed for the following constituents, as applicable, and based on initial sample results of the contents of the removed object:

- TPH-gasoline;
- TPH-diesel;
- TPH-motor oil;
- BTEX, MTBE; and

- PAHs.

Soil sample results will be screened against the Tier 1 Petroleum PSC for shallow soils (<10 feet below ground surface [bgs], residential reuse, non-drinking water resources) (Shaw, 2007). If soil samples contain COPCs above the Tier 1 Petroleum PSC, removal of the affected material or further evaluation will proceed as presented in Section E-3.1.

If soil samples do not contain concentrations of petroleum substances above the Tier 1 Petroleum PSC and no groundwater was encountered, a Site Closeout Report will be prepared documenting a no further action recommendation for RWQCB approval. Upon submittal of the Closeout Report, development activities will continue under the guidance of the RMP or approved Restricted Activities Work Plan.

Groundwater encountered during the removal of the object(s) will be addressed as presented in Section E-3.2.

E-3.1 Excavation of Petroleum Affected Material

If affected material is encountered during the removal of an object(s) or as a stand-alone material, excavation and segregation of the affected material will proceed. The excavated affected material will be segregated, stockpiled, and secured pending characterization sampling for reuse, further treatment, or offsite disposal (Flowchart E-2, Boxes 10B, 14, 14B, 15, 15B, and 14A). The excavation will incrementally extend laterally and vertically to the maximum extent feasible to remove affected material. Vertical excavation will extend until the affected material is removed to an initial depth of 10 feet bgs or groundwater is encountered, whichever is shallower. If affected material extends past the initial depth of removal (10 feet bgs or first groundwater, whichever is shallower), the RWQCB will be notified and consulted to determine if the residual contamination represents a human and/or ecological hazard based on existing subsurface conditions, nature of the contamination, and proposed development plan for the area. If, during the excavation of the affected material, the volume of the excavated material exceeds 100 cubic yards, the RWQCB will be notified and excavation of additional material will continue.

Upon removal of the affected material, excavation confirmation samples will be collected for analysis in accordance with the procedures specified in the PCAP (ITSI, 2009). Excavation confirmation soil samples will be analyzed for the presence of the following

constituents, as applicable, based on initial characterization results of the contents of the removed object and/or encountered stand-alone affected material:

- TPH-gasoline;
- TPH-diesel;
- TPH-motor oil;
- BTEX/ MTBE; and
- PAHs.

The results of the excavation confirmation soil samples will be compared to the Tier 1 Petroleum PSC for shallow soil (Shaw, 2007).

If concentrations of petroleum substances remaining in the excavation are below the Tier 1 Petroleum Program Strategy screening levels, the RWQCB will be notified, excavation will stop, and characterization samples of the excavated segregated material will be collected as described in Section E-3.3 (Flowchart E-2, Boxes 10, and 10B).

If, however, the concentrations of remaining chemicals of potential concern (COPCs) are above the Tier 1 Petroleum Program Strategy screening levels, an evaluation of the site conditions using the framework in the Low-Threat UST Case Closure Policy (SWRCB Resolution 2012-0016) will be made in consultation with the RWQCB. If the Low-Threat criteria evaluation indicates that the site is suitable for no further action, no additional soil removal will occur, and characterization samples will be collected from the excavated segregated material as per Section E-3.3 (Flowchart E-2, Boxes 10A, 10B, and 11). If the Low-Threat Criteria evaluation indicates that the site requires further action, Owner shall consult with the RWQCB to determine whether excavation and segregation of the affected material will continue, or whether preparation of a Site-specific CAP is required (Flowchart E-2, Box 10A, 11, 12, and 13).

E-3.2 Encountered Groundwater

If excavation of affected soil extends to groundwater and groundwater has a measurable TPH free-product thickness of greater than 0.01 feet, the RWQCB and SFDPH will be notified and both agencies consulted to determine if preparation of a Site-specific CAP is required (Flowchart E-2, Boxes 3A, 4A, 5A, and 7A). If groundwater without measurable free product is encountered, a groundwater sample will be collected and analyzed for the

presence of the following constituents, as applicable, and based on initial characterization results of the contents of the removed object and/or encountered stand-alone affected material:

- TPH-gasoline;
- TPH-diesel,
- TPH- motor oil;
- BTEX/MTBE; and
- PAHs.

Groundwater samples will be collected and analyzed according to the procedures outlined in the PCAP. Laboratory results of the collected groundwater sample will be compared to the Tier 1 Petroleum PSC and based on the location of the discovered Unexpected Condition (e.g., distance from the Bay Margin). If total TPH, BTEX, PAH, or MTBE concentrations in the collected groundwater sample exceed the Tier 1 Petroleum PSC for the location where the TPH Unexpected Condition was encountered, the SFDPH will be notified and consultation with the RWQCB will take place to determine if preparation of a Site-specific CAP is necessary (Flowchart E-2, Boxes 7B, 5A, and 7A). If encountered groundwater does not contain TPH COPCs above the Tier 1 Petroleum PSC, work will continue under the guidance of the RMP and the RWQCB will be notified (Flowchart E-2, Boxes 6A, 7B, and 8).

E-3.3 Segregated Material Characterization

Segregated material (e.g., soil) derived during removal of the encountered object(s) and/or as part of affected material excavation activities will be sampled for handling and waste disposal purposes. Composite sampling of the segregated material will not be allowed and the number of discrete, segregated material samples collected for waste profiling will be as follows (DTSC, 2001):

Volume of Segregated Material	Samples per Volume
Up to 1,000 cubic yards	1 discrete sample per 250 cubic yards
1,000 to 5,000 cubic yards	4 discrete samples for first 1,000 cubic yards plus 1 discrete sample per each additional 500 cubic yards
Greater than 5,000 cubic yards	12 discrete samples for first 5,000 cubic yards plus 1 discrete sample per additional 1,000 cubic yards

DTSC Information Advisory, Clean Imported Fill Material, October 2001.

Segregated material samples will be analyzed for the following constituents, as appropriate, and based on the initial characterization analytical results collected when the affected material was first encountered:

- TPH-gasoline;
- TPH-diesel;
- TPH-motor oil;
- BTEX, MTBE; and/or
- PAHs.

Sample results will be provided to candidate waste disposal facilities for comparison with waste disposal acceptance criteria. The material will be disposed at a Class I, Class II, or Class III waste disposal facility that is permitted to accept the waste as characterized by the waste profile.

As an alternative to disposal at a Class I or Class II waste disposal facility, the Owner may consult with the RWQCB to determine if onsite treatment is an option (Flowchart E-2, Boxes 14B and 15). If onsite treatment is approved, the segregated material will be treated until petroleum COPC concentrations are below:

- Tier I Petroleum PSC for shallow soil; or,
- Soil Import Plan screening criteria; or,
- Waste acceptance criteria for Class III disposal.

Treated soil with COPC concentrations below the Tier 1 Petroleum PSC may be used as fill material and placed under the Durable Cover. Treated soil with petroleum COPC concentrations below the Soil Import Plan (Appendix H) screening criteria may be used

as clean fill for the Durable Cover. Treated soil that is not used as onsite fill and that meets Class III disposal criteria may be disposed offsite at a Class III landfill. The Owner will notify the RWQCB of its intent to handle and place or dispose of the treated soil and prepare a Site Closeout Report for review and approval (Flowchart E-2, Box 14A).

If onsite treatment is not approved, the excavated material will be hauled offsite for disposal at a Class I, Class II, or Class III waste disposal facility that is permitted to accept the waste as characterized by the waste profile (Flowchart E-2, Box 15A). After disposal of the segregated material, no further action will be recommended and a Site Closure Report will be prepared and submitted for RWQCB approval.

E-4. HAZARDOUS SUBSTANCES CONTAMINATION

If, during the initial evaluation of the analytical results for a physical object and/or affected material (described herein at Section E-2.2), the Unexpected Condition is determined to require additional evaluation and response (Flowchart E-1, Box 5E), the following process will be undertaken as outlined in the Hazardous Substances Unexpected Condition Flowchart (Flowchart E-3). Work will occur under the oversight of the SFDPH, except in two circumstances: i) where the work requires a new CERCLA action or decision document because hazardous substances are identified at levels above ROD remediation goals or a new hazardous substance is identified as specified in Sections E-4.1 and E-4.2 below; or ii) the SFDPH or the FFA Signatories determine on a case-by-case basis at any point in the process described in this Section E-4 that it is more appropriate for technical or regulatory reasons for specific work to be conducted under the oversight of a designated FFA signatory. References to “SFDPH” in this section are deemed to be references to the designated FFA Signatory in any instance in which the SFDPH or the FFA Signatories have determined oversight by a designated FFA Signatory is appropriate. Completion of hazardous substances contamination evaluation and response under this UCRP will be documented in a Closure Report submitted for SFDPH review and approval. Where a new CERCLA action or decision document is determined to be necessary under the circumstances specified in Sections E-4.1 and E-4.2 below or an FFA Signatory oversees the work, the developer will obtain any necessary approvals from the appropriate FFA Signatory or FFA Signatories.

If the Unexpected Condition encountered is a physical object(s), including such items as USTs, sumps, drums, or other containers, the object(s) will be removed in consultation with the SFDPH and in accordance with applicable SFDPH permitting requirements, and the FFA Signatories will be notified (Flowchart E-3, Box 2B). Upon removal of the object(s), the surrounding material will be assessed for physical characteristics (visibly stained soil and chemical odor) and screened with field instruments for evidence of contamination. Affected material will be designated as such on the basis that it appears discolored, as compared to surrounding Bay Fill/Native Soil, it exhibits a chemical odor, and field monitoring instruments register a concentration that exceeds levels typical of Bay Fill/Native Soil. Removal of the affected material will proceed as presented in Section E-4.1.

If there is no evidence of additional affected material in the excavation, other than the removed physical object, final soil confirmation samples will be collected from the

excavation in accordance with the procedures outlined in the Navy's Parcel-specific Remedial Action Work Plan (RAWP). Collected soil samples will be analyzed for the following constituents, as applicable, and based on initial assessment results of the contents of the removed object:

- VOCs including MTBE;
- SVOCs;
- CAM 17 Metals;
- Pesticides;
- PCBs;
- TPH-gasoline;
- TPH-diesel; and
- TPH-motor oil.

Collected soil sample results will be screened against the applicable ROD remediation goals or RSL if not listed in the ROD and Tier 1 Petroleum PSC. If soil samples contain COPCs above the applicable ROD remediation goals Tier 1 Petroleum PSC, or DTSC-modified screening levels, which include RSLs, if not listed in the ROD, removal of the affected material will proceed as presented in Section E-4.1.

If soil samples do not contain COPCs above ROD remediation goals Tier 1 Petroleum PSC, or DTSC-modified screening levels if not listed in the ROD, a Closure Report will be prepared for SFDPH review and approval, the FFA Signatories will be notified, and work will continue under the guidance of the RMP (Flowchart E-3, Boxes 1, 2B, 3B, 4B, 5B, and 6B). If it is determined that no additional sampling of the excavation is necessary, and no groundwater was encountered (Flowchart E-3, Boxes 1, 2A, 3A, and 8), excavation will stop, and characterization of the excavated segregated material (excavated during the removal of the subsurface object) will proceed as per Section E-4.3 (Flowchart E-3, Boxes 8, 9, and 9B).

Encountered groundwater during the removal of the object(s) will be addressed as presented in Section E-4.2.

E-4.1 Excavation of Material with Hazardous Substances

If material with hazardous substances is encountered during the removal of an object(s) or as a stand-alone material, the excavated affected material will be segregated, stockpiled, and secured pending characterization sampling for reuse, further treatment, or offsite disposal as per Section E-4.3. The excavation will incrementally extend laterally and vertically to the maximum extent feasible to remove obviously affected material. In the case of affected material that cannot be readily identified by physical characteristics, the use of field screening instrumentation such as a PID or OVM will be implemented to assess the appropriate lateral and vertical extent of the excavation. Vertical excavation will extend until obviously affected material is removed to a depth of 10 feet bgs or the depth at which groundwater is encountered, whichever is shallower.

Upon removal of the affected material, soil confirmation samples will be collected from the excavation as specified in the Navy's Parcel-specific RAWP. Soil confirmation samples will be analyzed for the presence of the following constituents, as applicable, and based on initial characterization results of the contents of the removed object and/or encountered stand-alone affected material:

- VOCs (including methyl tert-butyl ether [MTBE]);
- SVOCs;
- CAM 17 Metals;
- PCBs;
- Pesticides;
- TPH-gasoline;
- TPH-diesel; and
- TPH-motor oil.

The results of the excavation confirmation samples will be compared to the applicable Parcel-specific ROD remediation goals or Tier 1 Petroleum PSC or DTSC-modified screening levels if not listed in the ROD.

If concentrations of COPCs remaining in the excavation are below the applicable screening levels, the SFDPH and the FFA Signatories will be notified, excavation will

stop, and characterization samples of the excavated segregated material will be collected as per Section E-4.3 (Flowchart E-3, Box 9B).

If, however, the concentrations of remaining COPCs are above the applicable screening levels, the SFDPH and the FFA Signatories will be notified and consulted to determine if the residual contamination represents a human and/or ecological hazard based on existing subsurface conditions, nature of the contamination, and proposed development plan for the area, in which case, a new CERCLA action by the Navy may be necessary. Owner will prepare a technical memorandum and recommendation for FFA Signatory review and determination (Flowchart E-3, Box 9A).

E-4.2 Encountered Groundwater

If excavation of affected soil extends to groundwater, a groundwater sample will be collected in accordance with the Navy's Parcel-specific RAWP. The collected groundwater sample will be analyzed for the presence of the following constituents, as applicable, and based on initial characterization results of the contents of the removed object and/or encountered stand-alone affected material:

- VOCs (including MTBE);
- SVOCs;
- CAM 17 Metals;
- PCBs;
- Pesticides;
- TPH-gasoline;
- TPH-diesel; and
- TPH-motor oil.

If COPCs concentrations in the collected groundwater sample exceed the applicable ROD remediation goal (Flowchart E-3, Box 5A), Tier 1 Petroleum PSC (if applicable), or DTSC-modified screening levels if not listed in the ROD, the SFDPH will be notified and the FFA Signatories will be consulted to determine if a new CERCLA action is required. In this case, Owner will prepare a technical memorandum and recommendation for FFA Signatory review and determination. If the concentrations of COPCs in the groundwater

sample do not exceed the appropriate screening levels, work will proceed under the guidance of the RMP under SFDPH oversight, and the FFA Signatories will be notified (Flowchart E-3, Box 7).

If VOCs are present, collection of soil vapor samples may be required according to the DTSC Vapor Intrusion Guidance (DTSC, 2011 and 2012) to evaluate whether the area should be designated as a VOC Area Requiring Institutional Controls (ARIC). The results of the soil vapor sample analysis will then be compared to the Soil Gas Action Levels (SGALs) established for the Site, included in Table E-1. If soil vapor sample(s) were collected and COPC concentrations in the collected soil vapor sample(s) exceed the applicable SGAL and the area is not already in a designated VOC ARIC, the SFDPH will be notified and the FFA Signatories will be consulted to determine if the area should be added to the VOC ARIC designation or whether other action is required (Flowchart E-3, Boxes 6, 6A, and 6C). If soil vapor sample(s) were collected and COPC concentrations in the collected soil vapor sample(s) do not exceed the appropriate SGALs, work will proceed under the guidance of the RMP under SFDPH oversight, and the FFA Signatories will be notified (Flowchart E-3, Box 6D).

E-4.3 Segregated Material Characterization

Segregated material (e.g., soil) will be sampled for characterization purposes. Composite sampling of the segregated material will not be allowed and the number of discrete segregated material samples collected for characterization will be as follows (DTSC, 2001):

Volume of Segregated Material	Samples per Volume
Up to 1,000 cubic yards	1 discrete sample per 250 cubic yards
1,000 to 5,000 cubic yards	4 discrete samples for first 1,000 cubic yards plus 1 sample per each additional 500 cubic yards
Greater than 5,000 cubic yards	12 discrete samples for first 5,000 cubic yards plus 1 discrete sample per additional 1,000 cubic yards

Data from DTSC Information Advisory, Clean Imported Fill Material, October 2001.

Samples will be analyzed for the following constituents, as applicable, and based on the initial characterization analytical results collected when the affected material was first encountered:

- VOCs, (including MTBE);

- SVOCs;
- CAM 17 Metals;
- PCBs;
- Pesticides;
- TPH-gasoline;
- TPH-diesel; and
- TPH-motor oil.

Sample results will be provided to candidate waste disposal facilities for comparison with waste disposal acceptance criteria. The material will be disposed at a Class I, Class II, or Class III waste disposal facility that is permitted to accept the waste as characterized by the waste profile (Flowchart E-3, Boxes 9B, 10, 10A, 11, and 11B).

For segregated material with COPCs concentrations exceeding ROD remediation goals or DTSC-modified screening levels if not listed in the ROD for soil, the SFDPH will be consulted to determine if onsite treatment of hazardous substance- contaminated soils is viable. If onsite treatment of contaminated soil is approved by the SFDPH, the soil will be treated and re-sampled until hazardous substance concentrations are below the applicable screening levels (Flowchart E-3, Boxes 9B, 10, 10A, 11, 11A, and 10B). Once ROD remediation goals Tier 1 Petroleum PSC, and/or DTSC-modified screening levels if not listed in the ROD have been met, the treated soil may be used as fill material and placed under the Durable Cover. A Closure Report will be prepared and submitted to the SFDPH for review and approval, the FFA Signatories will be notified, and additional work will proceed under the guidance of the RMP (Flowchart E-3, Box 10B).

If onsite treatment is not approved by the SFDPH, Owner will dispose of the material in accordance with applicable laws and regulations. The Owner will prepare a Closure Report for SFDPH approval and will notify the FFA Signatories (Flowchart E-3, Box 11B).

E-5. REFERENCES

Department of Toxic Substances Control (DTSC), 2001. Information Advisory, Clean Imported Fill Material. October.

DTSC, 2012, Advisory – Active Soil Gas Investigations. April

DTSC, 2011. Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October.

ITSI, 2009. Final Project Work Plan Petroleum Hydrocarbon Corrective Action Parcel B. June.

Shaw Environmental Inc. (Shaw), 2007. Final New Preliminary Screening Criteria and Petroleum Program Strategy, Hunters Point Shipyard, San Francisco, California. 21 December.

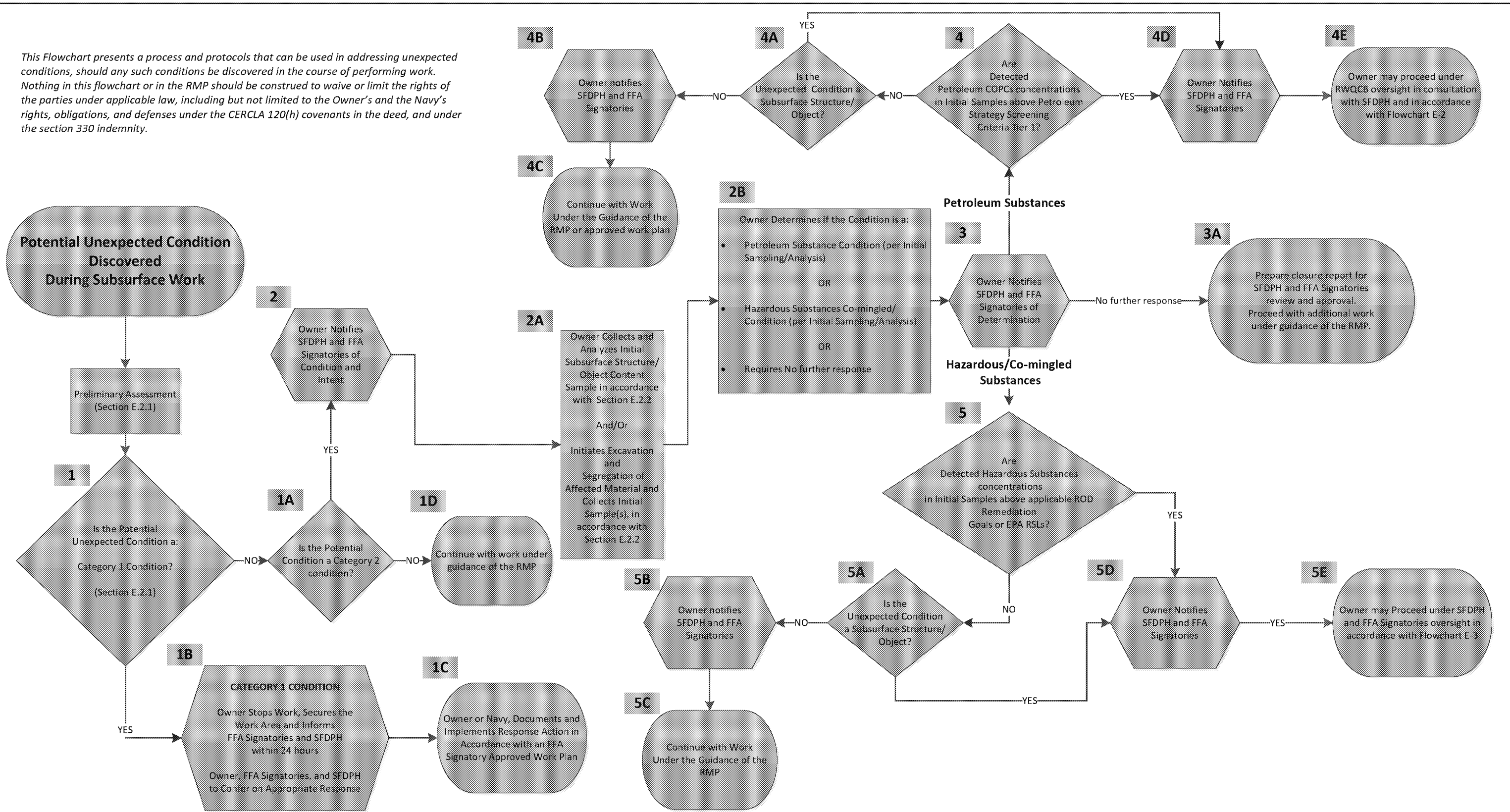
USEPA, 2014. Region IX Regional Screening Levels. May.

FLOWCHARTS

FLOWCHART E-1

Unexpected Condition Flowchart

This Flowchart presents a process and protocols that can be used in addressing unexpected conditions, should any such conditions be discovered in the course of performing work. Nothing in this flowchart or in the RMP should be construed to waive or limit the rights of the parties under applicable law, including but not limited to the Owner's and the Navy's rights, obligations, and defenses under the CERCLA 120(h) covenants in the deed, and under the section 330 indemnity.



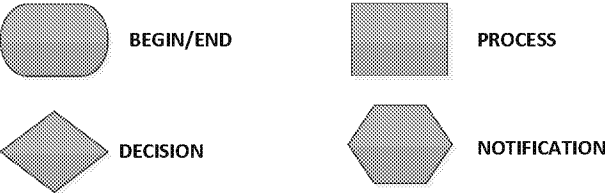
Notes:

REGULATORY AGENCIES:
US ENVIRONMENTAL PROTECTION AGENCY (EPA)
DEPARTMENT OF TOXICS SUBSTANCES AND CONTROL (DTSC)
REGIONAL WATER QUALITY CONTROL BOARD (RWQCB)
SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH (SFPD)

FFA SIGNATORIES:
US ENVIRONMENTAL PROTECTION AGENCY (EPA)
DEPARTMENT OF TOXICS SUBSTANCES AND CONTROL (DTSC)
REGIONAL WATER QUALITY CONTROL BOARD (RWQCB)
US DEPARTMENT OF THE NAVY (NAVY)

Category 1:
- Radiological materials
- MPPEH
Category 2:
- Hazardous substances
- Petroleum substances
- Commingled

Legend:



Unexpected Condition Flowchart
(Main Flowchart)

Hunters Point Naval Shipyard
San Francisco, California

Geosyntec
consultants

Figure

E-1

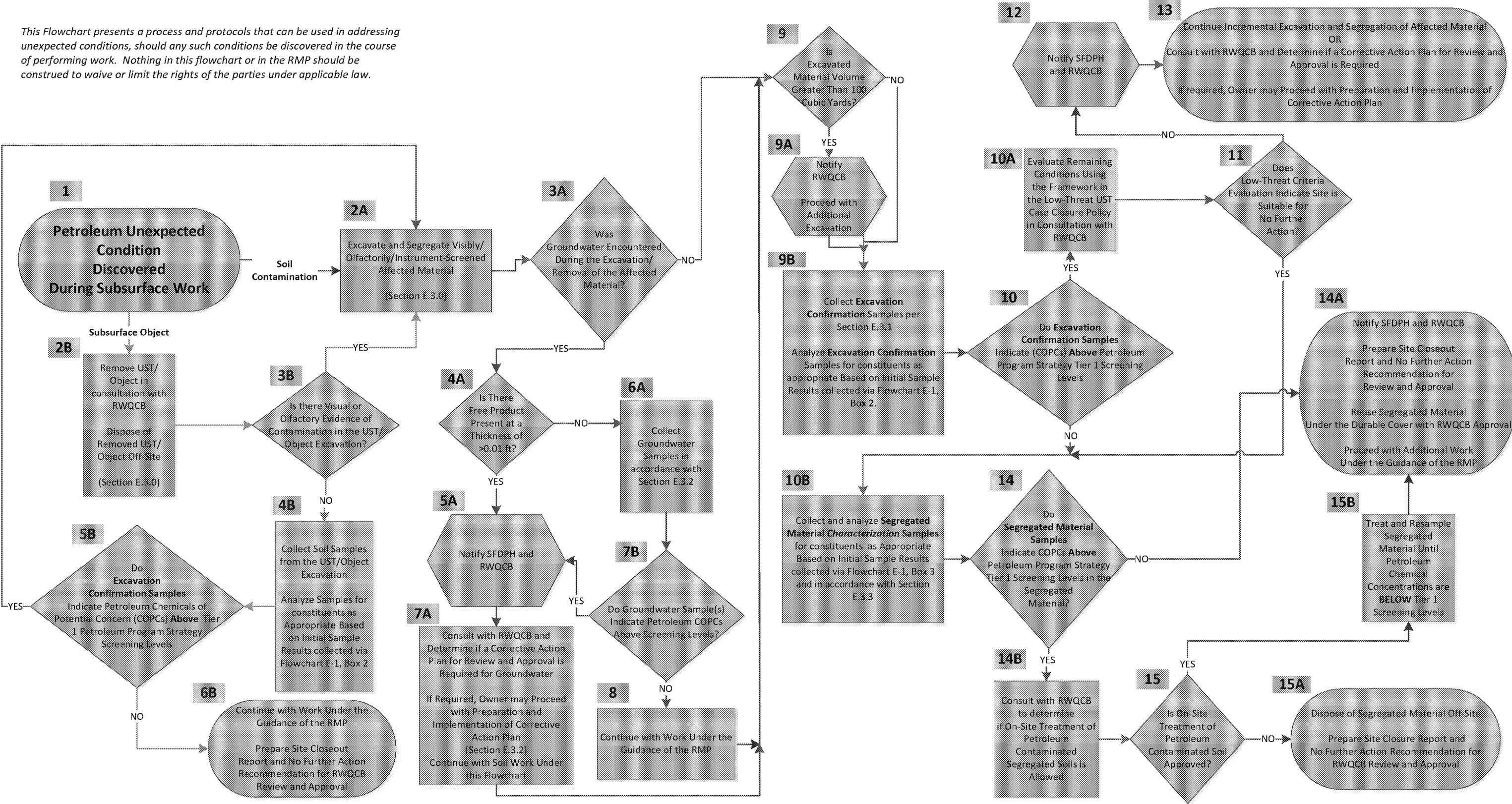
WR1247

September 2017

FLOWCHART E-2

Petroleum Unexpected Condition

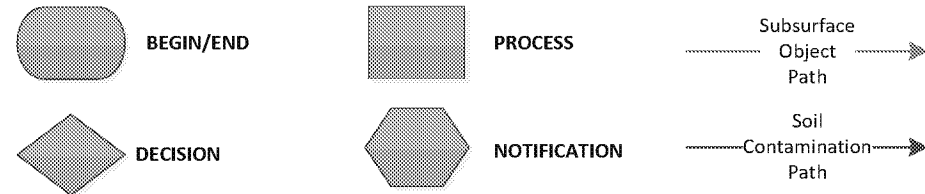
This Flowchart presents a process and protocols that can be used in addressing unexpected conditions, should any such conditions be discovered in the course of performing work. Nothing in this flowchart or in the RMP should be construed to waive or limit the rights of the parties under applicable law.



Notes:

REGULATORY AGENCIES:
REGIONAL WATER QUALITY CONTROL BOARD (RWQCB)
SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH (SFDPH)

Legend:



Petroleum Unexpected Condition Flowchart

Hunters Point Naval Shipyard
San Francisco, California

Geosyntec
consultants

Figure

E-2

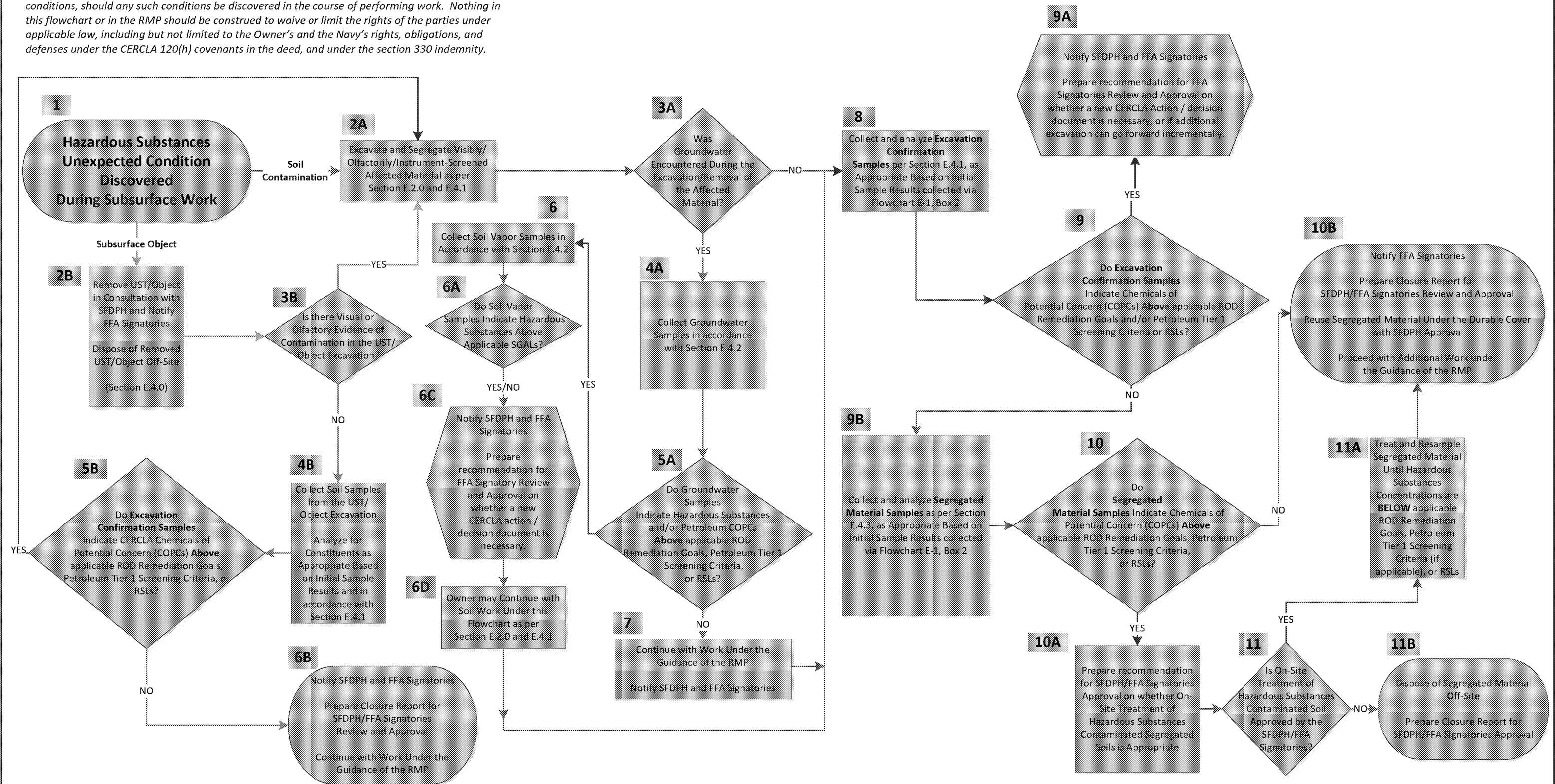
WR1247

September 2017

FLOWCHART E-3

Hazardous Substance Unexpected Condition

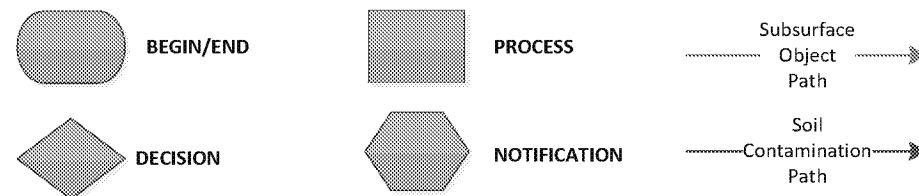
This Flowchart presents a process and protocols that can be used in addressing unexpected conditions, should any such conditions be discovered in the course of performing work. Nothing in this flowchart or in the RMP should be construed to waive or limit the rights of the parties under applicable law, including but not limited to the Owner's and the Navy's rights, obligations, and defenses under the CERCLA 120(h) covenants in the deed, and under the section 330 indemnity.



Notes:

FFA SIGNATORIES:
US ENVIRONMENTAL PROTECTION AGENCY (EPA)
DEPARTMENT OF TOXICS SUBSTANCES AND CONTROL (DTSC)
REGIONAL WATER QUALITY CONTROL BOARD (RWQCB)
US DEPARTMENT OF THE NAVY (NAVY)

Legend:



Hazardous Substances Unexpected Condition Flowchart

Hunters Point Naval Shipyard
San Francisco, California

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Figure

WR1247

September 2017

E-3

APPENDIX F
Environmental Health and
Safety Plan Outline

ENVIRONMENTAL HEALTH AND SAFETY PLAN OUTLINE

All EHSPs will include a description of specific tasks to be performed, key personnel, health and safety responsibilities, site background, job hazard analysis and mitigation, air monitoring procedures, PPE, work zones and site security measures, decontamination measures, general safe work practices, contingency plans and emergency information, medical surveillance and specific training requirements. An example outline of an EHSP is presented below:

SITE EMERGENCY INFORMATION

1.0 INTRODUCTION

- 1.1 Purpose of the Site Health and Safety Plan
- 1.2 Implementation and Modification of the Site Safety Plan
- 1.3 Project-Related Documents

2.0 BACKGROUND AND DESCRIPTION OF WORK

- 2.1 Site Description and Background
- 2.2 Scope of Work

3.0 KEY PERSONNEL ROLES AND RESPONSIBILITIES

- 3.1 Project and Task Managers
- 3.2 Field Supervisor
- 3.3 Site Health and Safety Officer
- 3.4 Competent Person
- 3.5 Subcontractors, Visitors and Other Onsite Personnel

4.0 JOB HAZARD ANALYSIS

5.0 GENERAL SITE SAFE WORK PRACTICES

- 5.1 Biological Hazards
- 5.2 Radiological Hazards¹
- 5.3 Dust Control

¹ The radiological hazards section should include examples of potential radiological objects to make site workers are aware of what may be encountered.

- 5.4 Electrical
- 5.5 Excavation/Trenching
- 5.6 Fire/Explosion Control
- 5.7 Hand and Power Tools
- 5.8 Heat Stress
- 5.9 Heavy Equipment
- 5.10 Lifting
- 5.11 Material Handling
- 5.12 Noise
- 5.13 Overhead / Falling Debris
- 5.14 Slips/Trips/Falls
- 5.15 Utilities: Underground and Overhead
- 5.16 Vehicle Traffic
- 6.0 CHEMICAL HAZARDS
 - 6.1 Chemicals of Concern
 - 6.2 Action Levels
- 7.0 PERSONAL PROTECTIVE EQUIPMENT
- 8.0 AIR MONITORING PROCEDURES
 - 8.1 Ambient Air Monitoring
 - 8.2 Worker Exposure Monitoring
- 9.0 TRAINING AND MEDICAL MONITORING
- 10.0 CONTINGENCY AND EMERGENCY EVACUATION PLANS
- 11.0 SANITATION, HYGIENE AND DECONTAMINATION
 - 11.1 Sanitation and Personal Hygiene
 - 11.2 Drinking Water
 - 11.3 Personnel Decontamination
 - 11.4 Equipment Decontamination

12.0 SITE AND TRAFFIC CONTROL PLAN AND SITE SECURITY

12.1 Site Control

12.1.1 Support Zone

12.1.2 Contamination Reduction Zone

12.1.3 Regulated Area/Exclusion Zone

12.2 Traffic Control

13.0 REFERENCES

APPENDIX G

Draft Dust Control Plan

Prepared for

CP Development Company L.P.
One Sansome Street, Suite 3200
San Francisco, California 94104

**DRAFT DUST CONTROL PLAN
PHASE II DEVELOPMENT AREA
HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA**

Prepared by

Geosyntec 
consultants

engineers | scientists | innovators

1111 Broadway, 6th Floor
Oakland, California 94607

Project Number: ~~WR1247~~WR2403

~~October 2017~~

October 2018

*Privileged and Confidential – For Discussion Only
Prepared at the Request of Counsel*

**DRAFT Dust Control Plan
Phase II Development Area
Hunters Point Shipyard
San Francisco, California**

Prepared by

Geosyntec Consultants, Inc.
1111 Broadway, 6th Floor
Oakland, California 94607

Randolph C. Brandt, P.G.
Senior Principal

Project Number: ~~WR1247~~WR24037
~~October 2017~~
October 2018

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Figure G-2: Wind Rose

LIST OF APPENDICES

Appendix A: Particulate Monitoring System and Approval Form

Appendix B: Independent Third Party Inspection Checklist

LIST OF ACRONYMS AND ABBREVIATIONS

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
APCO	Air Pollution Control Officer
ATCM	Asbestos Airborne Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
BMP	best management practice
CARB	California Air Resources Board
CCR	California Code of Regulations
DTSC	Department of Toxic Substances <u>City and County of San Francisco</u>
CP DevCo	CP Development Co., LP
CSAAQS	California State Ambient Air Quality Standards
DCP	Dust Control Plan
EHS	Environmental Health Section
FEIR	Final Environmental Impact Report
HEPA	high-efficiency particulate air
HPS	Hunters Point Shipyard
km/hr	kilometers per hour
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NOA	naturally occurring asbestos
PM-10	Particulate Matter (on the order of ~10 micrometers or less)
RACM	regulated asbestos-containing material
RMP	Risk Management Plan
SFDPH	San Francisco Department of Public Health
SWPPP	Storm Water Pollution Prevention Plan
USEPA	United States Environmental Protection Agency

G-1. INTRODUCTION

G-1.1 Document Objective

This ~~Risk Management Plan (RMP-dust control plan)~~ Dust Control Plan (DCP) has been prepared to address development activities that will occur at the Property in San Francisco, California (Figure G-1).

This RMP ~~Dust Control Plan~~ DCP has been prepared in accordance with the requirements of the permit process established in Article 31 and compliance with Article 22B of the City and County of San Francisco Health Code and certain Bay Area Air Quality Management District (BAAQMD) regulations often applicable to redevelopment activities, as further described herein. This plan addresses dust control measures that will be implemented during deconstruction and development of horizontal infrastructure at the site.

This plan applies to demolition of existing structures, and dust control associated with soil disturbance or excavation at the Property. In accordance with the requirements of Article 31, this plan was prepared under the supervision of a professional engineer registered in the State of California.

G-1.2 Regulatory Basis

The Final Environmental Impact Report (FEIR) 2010 for the Candlestick Point/Hunters Point Shipyard (HPS) project includes mitigation measures requiring actions that will reduce or eliminate adverse environmental impacts during development at the Property. These mitigation measures were adopted in a Mitigation Monitoring and Reporting Program. The Disposition and Development Agreement incorporates FEIR mitigation measures that are relevant for Phase II development at the Property and includes the commitments for implementing mitigation measures set forth in Section 18 of the Disposition and Development Agreement and in the FEIR.

Dust control is one of the specific mitigation measures applicable to development at the Property, and this plan specifically identifies the steps that will be taken to reduce air emissions during demolition of existing structures, grading, utility work, and construction of site infrastructure. This plan also includes the necessary monitoring and reporting requirements.

This ~~Dust Control Plan~~DCP incorporates requirements of the following applicable regulations:

- California Code of Regulations (CCR) Title 17, Section 93105, the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations;
- ~~Bay Area Air Quality Management District (BAAQMD)~~BAAQMD Regulation 2, Permits;
- BAAQMD Regulation 6, Particulate Matter (PM-10) and Visible Emissions;
- BAAQMD Regulation 11, Rule 2, Asbestos Demolition;
- BAAQMD Regulation 11, Rule 14, Asbestos Containing Serpentine;
- City and County of San Francisco Building Code Section 106A.3.2.6, Construction Dust Control;
- City and County of San Francisco Health Code Article 22B, Construction Dust Control Requirements;
- City and County of San Francisco Health Code Article 31 and Implementing Regulations;
- City and County of San Francisco Order Number 171,378; and
- ~~CP~~Candlestick Point-HPS Phase II FEIR 2010 Mitigation Measure MM HZ-15: Asbestos Dust Mitigation Plans and Dust Control Plans.

Article 22B specifies a goal of minimizing visible dust emissions from the site and Article 22B and Section 106A.3.2.6 of the San Francisco Building Code outline housekeeping measures required to meet this goal. Mitigation Measure HZ-15 similarly defines best management practices (BMPs) including wetting and seeding unpaved, inactive areas, minimizing activity during periods of high wind, sweeping paved areas, covering trucks, etc. Additionally, BAAQMD Regulation 6, which generally prohibits emission of visible dust beyond the property boundary, is also applicable.

Because the site is in an area with serpentine rock, CCR Title 17, Section 93105 (ATCM) applies. ATCM includes, among other things, the requirement for submission of an Asbestos Dust Mitigation Plan for BAAQMD approval prior to grading activities. The ATCM also includes very specific practices to be implemented during construction.

Mitigation Measure HZ-15 also provides BMPs for handling serpentine material, and BAAQMD Regulation 11, Rule 14 prohibits the use or sale of asbestos-containing serpentine materials for road surfacing.

In addition to emission controls for dust generated by general construction activities, specific requirements apply to asbestos-related dust generated by demolition activities. A qualified subcontractor licensed and experienced to manage asbestos- and lead-contaminated building materials will perform demolition of existing structures. The subcontractor will demonstrate compliance with the requirements of BAAQMD 11- 2, which states that demolition activities will not be allowed to cause any visible plumes from any operation involving the demolition, removal, manufacture or fabrication of any product containing asbestos.

Contractors selected to perform demolition and grading will be responsible for obtaining applicable permits as described in the project specifications.

G-2. BACKGROUND

G-2.1 Site Description

The Navy's Hunters Point Shipyard was divided into 11 parcels of varying sizes to facilitate environmental cleanup and property transfer. The Property is bounded by private property and city rights-of-way to the north and west and San Francisco Bay to the south and east. The Property includes the portion of the former Navy Hunters Point Shipyard illustrated in Figure G-1.

The Property consists primarily of flat lowlands that were constructed by placing borrowed fill material from various sources, including crushed serpentinite bedrock from the adjacent highland and dredged sediments. The serpentinite bedrock and serpentinite bedrock-derived fill material consist of minerals that naturally contain asbestos and relatively high concentrations of arsenic, manganese, nickel, and other metals. The Property is covered with a durable cover, which consists of buildings or hardscape or at least two feet of clean soil placed over Native Soil.

G-2.2 Site History

The history of the Property is described in the many documents referenced in the RMP.

G-2.3 Phase II Scope of Work

The redevelopment of the Property will consist of development of horizontal infrastructure to support later development, parks construction, and vertical construction. The Site activities will consist of demolition, site grading, utility system installation, paving, foundation excavation, and vertical construction of commercial/light industrial spaces, housing units and artist studio space.

G-2.4 No Visible Dust Goal

The dust control measures set forth in this plan are intended to achieve a goal of no visible dust emissions associated with soil disturbance, movement, or excavation of soil, to the extent required by the applicable regulations identified above.

G-3. POTENTIAL SOURCES OF EMISSIONS

Planned site activities have the potential to generate particulate emissions in the form of fugitive dust emissions. Possible sources of particulate emissions include:

- Construction Traffic – Movement of construction equipment around unpaved portions of the construction area is capable of creating fugitive dust emissions in excavated or cleared areas. There is also the potential for vehicular traffic on paved or unpaved roads and parking lots to produce fugitive dust emissions.
- Demolition – Demolition of existing above and below grade structures will be conducted through a variety of demolition techniques, which may include sawing, breaking, and excavation. Roads, parking lots, and other hardscape surface treatments will be demolished by grinding, sawing, and breaking, as appropriate for the material. Wherever possible, reclaimed material will be recycled and reused.

Potential sources of fugitive dust during demolition activities include impact hammers, saws and heavy equipment to reduce material size; and vehicular traffic traveling on un-paved portions of the Site to collect and transport the material. Equipment or tools will be fitted with a water spray system which directs water spray at the point where the tool contacts the structural material to reduce dust emissions at the source during the demolition activity. Details of these dust control BMPs are described in more detail in Section G-4.

- Concrete Reclamation and Recycling – Due to the amount of concrete debris that may be generated and the amount of general and structural fill that will be required for development construction, CPDCCP DevCo has developed a plan to reclaim and recycle as much concrete as possible. Depending on the volume of debris, this may or may not occur on Site.

Potential sources of fugitive dust during concrete crushing activity includes vehicle traffic on paved and dirt roads, movement of material from demolition areas to stockpiles, from stockpiles to the crusher, and from the crusher to the final processed material stockpiles. Dust control BMPs and protocol are described in Section G-4 and generally entail applying spray water as the material is picked up from the stockpile and as the material is loaded into the hopper; crushing the material in an enclosed containment; utilizing water spray bars located at the end of each stage of the conveyor belt system which continuously apply a water mist

to the crushed material; and applying water to processed material stockpiles or covering the stockpiles. Details of these dust control BMPs practices are described in more detail in Section G-4.

- **Site Preparation Prior to Placement of Fill Material** – In advance of placement of fill material to raise Site elevations or as surcharge to facilitate compaction, existing surfaces must first be prepared to address geotechnical requirements. This preparation usually entails scarifying the existing ground surface to create an appropriate surface on which new material will be placed. The scarification process can be accomplished by several methods, the most common of which is called “ripping” and entails dragging a set of parallel metal teeth across the surface similar to a plow. Other means include running a sheep’s foot roller compactor over the surface to create a series of indentations or breaking up the surface material. Prior to and during active scarification, water will be added to the soil being disturbed in these work areas to minimize the potential for dust generation. Once the scarification process is complete and prior to placement of fill or surcharge material, the disturbed areas will be kept moist throughout the work day. -Details of these and other dust control BMPs are described in more detail in Section G-4.
- **Infrastructure Improvements** – Infrastructure improvements include excavation and backfilling of trenches for the installation of underground utilities, rough and fine grading in preparation of road construction, forming and pouring concrete road base and sidewalks, and backfilling, grading, and re-vegetating of the disturbed areas.

Potential sources of fugitive dust emissions include vehicle traffic on paved and dirt roads, disturbance and movement of soil, trench backfill, loading of soil into dump trucks, and soil stockpiling. Stockpiles of excavated soil from trenching activities may contribute to windborne dust emissions. Details of the dust control BMPs for earth moving activities are described in more detail in Section G-4.

- **Vertical Development** – Upon completion of demolition, mass grading, and construction of the major infrastructure, the vertical construction will begin. In general vertical construction is not anticipated to generate significant dust as the majority of the area will be paved with hardscape. However, vertical construction will involve some minor earth moving activities for installation of foundation elements, connection to below-grade utilities already installed within the adjacent public rights-of-way, final grading and paving of parking lots, and landscaping.

Potential sources of fugitive dust emissions include vehicle traffic on paved and dirt roads, disturbance and movement of soil, trench backfilling, loading of soil into dump trucks, and soil stockpiling. Details of the dust control BMPs for earth moving activities are described in more detail in Section G-4.

G-4. GENERAL DUST CONTROL METHODS

While all parties understand that soil disturbance and excavation activities, by their nature, will produce dust, Site controls will be used to mitigate visible dust as it is generated in an effort to achieve the no visible dust goal. This section lists methods for control of fugitive dust generated by soil disturbance or excavation including:

- Dust entrained during on-site travel on paved and unpaved surfaces;
- Dust entrained during site grading, excavation, crushing, demolition, and back-filling at the construction site;
- Dust entrained during aggregate and soil stockpiling, loading, and unloading operations; and
- Wind erosion of areas disturbed during construction activities.

G-4.1 Visible Dust Monitoring During Site Activities

This section establishes the steps that must be taken toward achieving the goal of no visible dust from soil disturbance or excavation in terms of the amount of time permitted to address an initial observation of visible dust plumes. The criteria in this section apply to an active construction site when equipment and personnel are driving on the Site and performing work activities. The “initial observation” starts the clock for the required response measures described below. The “initial observation” is the time any of the following personnel observe visible dust: (a) workers who are disturbing soils or excavating for the permitted activity or (b) any property developer representative, supervisor, contractor, subcontractor or consultant with responsibility for monitoring the permitted activity including the independent third party. An independent third party is a party that is hired by the Owner and is a party that is not working for the contractor conducting the earth disturbing activities.

G-4.1.1 Visible Dust Crossing the Property Boundary

In the event visible dust from soil disturbance or excavation is observed crossing the property boundary, the following procedures will be followed to ensure adequate mitigation measures are in place to address the dust:

1. The specific source of the emissions will be immediately shut down and a more aggressive application of the existing mitigation measures described in this Section G-4 will be directed.
2. Once the mitigation measures have been applied, the source of emissions will resume and observations will be conducted to verify that the mitigation measures were successful.

G-4.1.2 On-Site Visible Dust

In the event visible dust from soil disturbance or excavation is observed on-site, but does not cross the property boundary, the following procedures will be followed to ensure adequate mitigation measures are in place to address the dust:

1. A more aggressive application of the existing mitigation measures described in this Section G-4 or additional methods of dust suppression will be directed to the specific source of emissions within 60 minutes of the initial observation.
2. If despite these more aggressive and/or additional measures the visible dust emissions continue for 90 minutes from the time of the initial observation, the specific source of emissions will be temporarily shut down until the implemented dust control mitigation is effective or, due to changed conditions, no longer necessary.

G-4.2 Windblown Visible Dust during Inactive Periods

The standards in this section apply on weekends and holidays or any other times when no equipment and personnel are performing work activities at the construction site. In the event of observations of windblown visible dust plumes from soils originating on the construction site, mitigation measures described in this Section G-4 will be directed by the contractor within less than 4 hours of making the observation. Additionally, if strong sustained winds (hourly average wind speeds of 25 miles per hour (mph) (40 kilometers per hour [km/h] or greater) are predicted during non-work times (i.e., holidays and weekends), work areas will be wetted and dust monitoring conducted at least once during the predicted high-wind time period. Mitigation measures will be applied until the visible dust plumes originating from the construction site are minimized or eliminated. Any observations of visible dust originating from the construction site during inactive periods should be reported to the master developer Hotline at 866-5-Lennar.

G-4.3 Construction Traffic

G-4.3.1 Track-out Prevention

Track-out of loose materials will be controlled using gravel pads along with a tire washing/cleaning station installed at the access point from the unpaved portion of the project Site to a paved road to prevent tracking of soil onto public roadways. The stabilized construction exit (gravel pads) will be installed according to the specifications provided in the Erosion and Sediment Control Plan of the Storm Water Pollution Prevention Plan (SWPPP) for the Site. All vehicle tires and horizontal surfaces on trucks that can collect soil (e.g., bumpers, fenders) will also be inspected and washed as necessary to prevent track-out (at gravel ramps of at least 50 feet long) prior to entering the paved roadways. To the extent possible, heavy equipment will be left on the construction site to minimize the potential for track-out.

G-4.3.2 Traffic Control

Mitigation measures and BMPs will be followed to control fugitive dust emissions from construction traffic traveling on unpaved portions of the construction site and from construction traffic traveling from unpaved to paved portions of the Project Area as described in the following sub-sections.

G-4.3.2.1 Travel on Unpaved Surfaces

To the extent practicable, travel on unpaved surfaces within the construction site will be minimized and limited only to necessary construction vehicles. Fugitive dust emissions from construction traffic traveling on unpaved surfaces will be controlled with the following mitigation measures and BMPs:

1. All unpaved roads in the project construction Site will be watered at the start of each work day and prior to the movement of any equipment traveling on the unpaved portions of the active construction Site. All of these same unpaved roads will be watered at the end of the work day. In addition, active unpaved roads will be watered every two hours or frequently enough to maintain moisture conditions adequate to prevent the release of fugitive dust. The frequency of watering can be reduced, as appropriate, during periods of precipitation.

2. Vehicle speeds will be limited to 5 miles per hour (mph) (8 kilometers per hour {km/h}) on unpaved surfaces or 15 mph on paved surfaces within the construction Site. Speed limit signs will be posted at the construction Site entrances.
3. Vehicle trips will be reduced through efficient truck and equipment usage to reduce the potential for traffic-related dust.
4. Implementation of erosion control measures identified in the Construction SWPPP, will control fugitive dust emissions from public roadways and parking areas.
5. Gravel access pads will be constructed in the temporary stockpile locations. It will be the responsibility of the construction contractor to construct and maintain functional gravel access pads.
6. Any graveled areas within and around the stockpile area will be inspected during the daily inspections of the stockpiles (Section G-4.4.6) and the gravel surface maintained as necessary to provide adequate dust control. The gravel cover should have a silt content that is less than five (5) percent and asbestos content that is less than 0.25 percent, as determined using an approved asbestos bulk test method, to a depth of three (3) inches on the surface being used from for travel.
7. Personal vehicles will not be parked within unpaved portions of the Site. Personal vehicles may be parked only on temporary graveled or paved parking areas.
8. To the extent possible, construction work vehicles (e.g., pick-up trucks) will park on paved or graveled areas within the site to avoid driving in unpaved areas.

G-4.3.2.2 Travel on Paved Surfaces

The following mitigation measures will be followed to control fugitive dust emissions from construction traffic traveling on paved surfaces:

1. The main access and egress routes to the construction site, which will be used by construction employees and delivery trucks, will be paved prior to the initiation of construction.
2. No construction vehicles will be allowed to enter or exit the unpaved portions of the construction site except through a treated exit (gravel pad and vehicle brush/wash station). Gravel pads will be installed at all unpaved area access/egress points to prevent tracking of soil on to public roadways. Wheel brushing stations will be constructed and used if track-out cannot be prevented by

the gravel pad only. The wheel brushing stations will be upgraded to wheel washing stations if necessary to prevent track-out.

3. Construction areas adjacent to and above grade from any paved roadway will be treated with BMPs, as specified in the Construction SWPPP.
4. Any visible track-out on a paved road at any location where vehicles exit the construction site must be removed. If visible track-out is noted, removal must be done using wet sweeping, a high-efficiency particulate air (HEPA) filter-equipped vacuum device or other effective means of removing the track-out. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.
5. All paved roads within or adjacent to the construction site will be swept twice daily with a wet sweeper if the roads were used by any construction vehicles that day or if there is evidence of visible dust (windblown or otherwise).
6. Additional water trucks will be utilized to aid in wetting paved public roads, and construction area roads as needed, throughout the day.

G-4.3.2.3 Additional Mitigation Measures for Traffic Control

If any of the above mitigation measures listed in Sections G-4.1 through G-4.3.2.2 fail to properly control fugitive dust emissions, one or more of the following reasonably available control measures will be applied:

1. Unpaved roads within active portions of the construction site will be watered or treated with dust control solutions to minimize the generation of visible dust due to wind and vehicle traffic. If watering is the chosen method, efforts will be made to maintain a continuously wet surface with water applied at a minimum frequency of every two hours and at the end of the day. If another liquid suppressant is chosen, then the manufacturer's application instructions will be followed so that a continuous dust suppressing layer is present.
2. Paved portions of the construction site will be swept at a frequency of at least every two hours with a wet sweeper and more frequently as necessary to control windblown dust and dust generated by vehicle traffic. Streets adjacent to the Construction Site will be swept as necessary to remove accumulated dust and soil. Water may also be applied to the paved roads if necessary to control fugitive dust.

3. Any designated haul roads, whether paved or unpaved, will be watered more frequently as necessary to control windblown dust and dust generated by construction vehicle traffic when in use by the contractor.
4. Physical or chemical stabilization compounds will be applied to control dust on unpaved roads where they were not previously applied.
5. Gravel, re-crushed/recycled asphalt or other material with low fines content (less than 5 percent) will be applied at a thickness of 3 or more inches, if necessary. Serpentine-containing material will not be used for this purpose.
6. Vehicle trips and vehicle speed on unpaved surfaces will be reduced.

G-4.3.3 Off-Site Transport

All vehicles that are used to transport solid bulk material and that have the potential to cause visible fugitive dust emissions will be covered with a tarp cover, or the materials will be sufficiently wetted and loaded onto the trucks in a manner to provide at least 1 foot of freeboard. This is most applicable for off-Site transport to a waste disposal facility. Trucks carrying loose soil or sand will be covered before they leave the construction Site, and on-Site vehicle speeds will be limited to 5 mph (8 km/h) or lower in unpaved construction areas.

Vehicles loads will be checked to ensure that they are appropriately covered and to remove any excess material on the shelf or exterior surfaces of the cargo compartment. No spillage can occur from holes or other openings in cargo compartments. All off-site haul trucks will access the construction sites via paved access roads and established gravel pads. Every off-site haul truck will proceed through the decontamination gravel pad/tire cleaning area prior to departure from the construction site. Site construction personnel will be stationed at the access point to monitor inflow/outflow to and from the Site. They will be responsible for inspecting all vehicles exiting and performing the cleaning of the tires.

G-4.4 Potential Dust Generating Activities

These sections describe the potential dust generating activities that may occur within the project boundaries and the various dust control techniques that will be used during such activities.

In addition, the perimeter of the active construction site will have dust curtains, plastic tarps, or windbreaks installed in areas of active construction in an effort to reduce the wind velocity at the border of the construction site.

G-4.4.1 Site Preparation and Grading

Fugitive dust emissions from site preparation and grading activities will be controlled using the following methods:

1. During clearing and grubbing, surface soils will be pre-wet to the depth of anticipated cut where equipment will be operated. All work areas will be watered prior to the start of excavation, grading, or movement of any equipment (other than water trucks). The frequency of watering can be reduced or eliminated, as appropriate, during periods of precipitation. Soil moisture content will be sufficiently maintained to minimize fugitive dust creation. For construction fill areas which have an optimum moisture content for compaction, completion of the compaction process will be performed as expeditiously as possible to minimize the release of fugitive dust.
2. If compaction will not take place immediately following clearing and grubbing, the surface soil will be stabilized with dust palliative and water to form a crust on the soil surface.
3. Prior to completion of grading, water will be applied to any disturbed areas as needed to prevent visible emissions.
4. Graded areas will be stabilized with chemical stabilizers within 5 working days of grading completion. Seed and water all unpaved, inactive portions of the lot or lots under construction to maintain a grass cover if they are to remain inactive for long periods during building construction.
5. Halt all clearing, grading, earthmoving, and excavating activities during periods of sustained strong winds (hourly average wind speeds of 25 mph (40 kilometers per hour [km/h] or greater).
6. Limit the area subject to excavation, grading or other construction activity at any one time. Cover on-site storage piles of loose soil or sand.
7. For inactive disturbed surfaces, the following dust control methods will be used:
 - a. A dust palliative will be applied in sufficient quantity to form a crust and create a stabilized surface.

- b. Backfill material will be wetted, covered, or contained when not actively handled.
- c. Inactive stockpiles (stockpiles that have existed for more than 7 days without any soil being added or taken away from the pile) will be covered or contained with a material such as plastic sheeting or more robust dust palliative;
- d. Stabilized and inactive stockpiles will be monitored on a routine basis at the beginning and end of each work shift, as well as once per weekend and once per 2 consecutive holidays, and dust suppression measures applied, where necessary, on an as-needed basis. At a minimum, touchup application of soil stabilizers will be applied to inactive stockpiles on a monthly basis or as necessary to maintain a viable cover.
- e. Excavated materials will be stockpiled, segregated, and managed to facilitate sampling and analysis for ~~NOA~~naturally occurring asbestos (NOA) content and disposal characterization.

G-4.4.2 Crushing

In the event that a concrete crusher will be mobilized to the Site to crush and recycle concrete debris resulting from building and roadway demolition, crushing operations will be visually monitored for the appearance of fugitive dust. If dust is being generated, water will be applied to control the dust. Serpentine materials containing asbestos will not be processed by the crusher. The following additional methods will be utilized to minimize concrete dust:

1. Use of specialized mechanized equipment such as high-reach excavators fitted with concrete pulverizers and shears to keep dust generation to a small localized area. Concrete crushing equipment utilized at the point of demolition will be fitted with water misters or foggers at the breaker head or claw, which will continuously spray water on the work surface during demolition to reduce dust generation.
2. During concrete reclamation and recycling operations, material stockpile and handling areas will be kept moist throughout the day and during the loading of concrete debris into the crusher. Water will be directed to the point where concrete enters the crushing jaw. -The watering device will provide a continuous stream of water mist which the material must pass before falling into a processed material

stockpile. All processed material stockpiles will be moistened throughout the work day and stabilized in accordance with Section G-4.4.6.

G-4.4.3 Demolition

Demolition activities will be monitored daily for the generation of fugitive dust. Water will be applied at the point(s) of demolition to minimize visible dust. The following methods will be utilized to minimize visible dust:

1. Prior to the commencement of daily demolition and material handling operations the active demolition area will be pre-wet.
2. Fugitive dust emissions from material handling and/or loading operations will be controlled by ensuring that all demolished material is adequately wetted during the handling and/or loading process.
3. Cover, wet or stabilize on-site piles of demolition debris.
4. Loader buckets will be emptied slowly and drop height from loader bucket minimized.
5. All loading activities will be halted during periods of sustained strong winds, defined as hourly average wind speeds of 25 mph (40 km/h or greater).
6. Prior to completion of demolition, water or other soil stabilizers will be applied to any disturbed areas as needed to prevent visible emissions.

G-4.4.4 Excavation Activities

Excavation activities will be visually monitored daily for the generation of fugitive dust. Water will be applied at the point of excavation, drilling or disturbance to minimize visible dust. The following methods will be utilized to minimize visible dust:

1. Soil will be pre-wetted prior to excavation to minimize visible dust. Additional water will be applied during active excavation, material handling, and loading. Active excavation areas will be wet a minimum of every two hours during dry weather or more frequently as needed. The disturbed area will be watered at the end of the day or a dust palliative can be applied according to manufacturer's instructions to stabilize the loose soil and prevent the release of fugitive dust.
2. The height from which excavated soil is dropped onto either stockpiles, haul trucks, or dewatering pads will be minimized and water sprays will be used to

prevent dust generation when soils are dropped onto stockpiles or loaded into trucks.

3. Water will be applied during any rock processing operations, and a trained geologist working under the direction of a ~~PG~~Professional Geologist will be present to observe the rock to be processed during the excavation to check for the presence of serpentinite rock. If present, serpentinite rock will be removed from the pile to be processed and treated separately.
4. A dedicated laborer will be assigned to each point of an excavation to sweep, shovel or otherwise push soil inadvertently dropped on adjacent paved roads within the construction area. If appropriate, an excavator may be used to push soil back into a trench.
5. Installation of a misting system can be used up to as much as 24 hours per day as needed to aid in keeping soil moist after construction activity has ceased each day.
6. As an alternative to watering, dust palliatives may be applied in sufficient quantities to inactive disturbed areas so as to form a crust and prevent the release of fugitive dust.

G-4.4.5 Loading

Loading activities will be visually monitored daily for the generation of fugitive dust. The following methods will be utilized to minimize visible dust:

1. Fugitive dust emissions from loading operations will be controlled by ensuring that all excavated material is adequately wetted during the loading process. Soil will be pre-wetted prior to loading to minimize visible dust.
2. Loader buckets will be emptied slowly, drop height from loader bucket minimized, and water sprays will be used to prevent dust generation when soils are dropped onto stockpiles or loaded into trucks.
3. All loading activities will be halted during periods of sustained strong winds, defined as hourly average wind speeds of 25 mph (40 km/h or greater).

G-4.4.6 Material Stockpiles

A soil storage pile is considered active if material is added to, or removed from a soil storage pile within 7 calendar days. In order to control fugitive dust emissions from active soil storage piles one or more of the following control measures will be used:

1. Adequately wetting the exposed surface with water, at least once daily and at the end of each work day;
2. A temporary cover (plastic sheeting, tarp, etc.) during non-work hours;
3. Daily inspections of active storage piles during work activities to verify that piles are adequately wetted or covered as necessary to prevent dust generation; and,
4. Inspection of storage piles once per weekend and once per 2 consecutive holidays to verify that piles are adequately wetted or covered as necessary to prevent dust generation.

Because increased truck traffic to the soil stockpile area may impact the surface of the asphalt or concrete Durable Cover, the roadways will be inspected weekly, along with the stockpile area, and repairs made to damaged roadways, as needed.

G-4.4.7 Foundation Work

Subsurface excavation associated with foundation work will be visually monitored daily for the generation of fugitive dust. The following methods will be utilized to control and minimize visible dust:

1. Sprinklers, wobblers, water trucks, or water pulls will be used to pre-water during cut and fill activities.
2. Building foundations will be constructed as soon as possible after grading to minimize fugitive dust emissions, unless other dust control measures are used in the interim.
3. Wind erosion control techniques, such as wind breaks, water/chemical dust suppressants, and vegetation, will be used on all construction areas that may be disturbed. Any wind erosion control techniques used will remain in place until the soil is stabilized or permanently covered with vegetation.

4. For back-filling during earthmoving operations, backfill material will be watered as needed to maintain moisture. If required, backfill soil will be mixed with water prior to moving. Loader buckets will be emptied slowly and drop height from loader bucket minimized. Once backfill material is in place, water will be applied immediately to form a crust, if necessary. A water truck or large hose will be dedicated to back-filling equipment and operations.
5. While clearing forms, single stage pours will be used where allowed. Use of high pressure air to blow soil and debris from the form will be avoided; instead, water spray, sweeping, and/or an industrial shop vacuum will be used to clear the form.

G-4.5 Post-Construction Stabilization of Disturbed Areas

At the completion of the Site development construction activities, a durable cover will be installed over all areas as required by the RMP. Any areas of exposed soil that have the potential to generate dust (e.g., vegetated areas where the vegetation has not yet become established) must be managed in accordance with this plan. Once the final cover is in place and there is no remaining exposed soil, dust control activities can be discontinued.

G-4.6 Additional Requirements for Serpentine Material

San Francisco Department of Public Health (SFDPH) Article 31 includes specifications on mitigation measures to address post-excavation stabilization for exposed serpentine material. In a memo to SF Planning Department (SFDPH, June 2011) about this mitigation measure, SFDPH Environmental Health Section (EHS) requires that the exposed serpentine material be covered with one of the following cover types:

1. One foot of clean, non-asbestos-containing fill soil;
2. Hardscape; or
3. Vegetative cover that holds soil in place.

The construction schedule will be prioritized to the extent possible to install permanent cap over potentially asbestos containing soil by placement of concrete road base and curb/gutter. Imported clean aggregate base rock may be used for placement of the final 6 to 12 inches of necessary fill to raise the grade to final subgrade elevation and provide a cover over potentially asbestos containing soil.

The June 2011 memo also clarifies that specific “institutional controls” must be implemented “to prevent future exposure to naturally occurring asbestos from excavation activities.” The purpose of the institutional control requirement is to assure that the post-excavation stabilization measure(s) will remain in place as long as the serpentine material is present. SFDPH EHS concludes in their June 2011 memo that the institutional control requirement is satisfied by the ongoing obligation to comply with the Building Code’s Construction Dust Control and the Health Code’s Article 31 requirements.

In addition, the 2010 Amendments to San Francisco Health Code Article 31 and the corresponding Implementing Regulations contain requirements for submittal of a Serpentine Cover Plan and the requirement to describe the implementation of this Plan in the required Article 31 Closure Report submittal.

As needed, any remaining rock that will be processed will be tested to verify that it contains less than 0.25% asbestos by the California Air Resources Board (CARB) 435 Method. In addition, excavated materials, which will be transported off site, will be analyzed for asbestos content. Materials with greater than 1 percent by-weight asbestos will be handled and disposed of off-site in accordance with all requirements for proper disposal of asbestos.

BAAQMD Regulation 11, Rule 14 also defines procedures and notifications required if serpentine material is sold for use as a surfacing agent. No serpentine will be used for surfacing material or sold from the Site.

If serpentine waste is scheduled for offhaul and disposal, the following waste management methods, at a minimum, will be used when handling serpentine waste designated as a hazardous pollutant:

1. Keep asbestos-containing waste material adequately wetted at all times during handling and loading.
2. Adhere to requirements of BAAQMD Regulation 11, Rule 2, Section 608 for marking of vehicles used to transport asbestos-containing waste.
3. Maintain waste shipment records as specified in BAAQMD Regulation 11, Rule 2, Section 502.
4. Control asbestos emissions from demolition of structures with asbestos-containing building materials in accordance with the requirements of BAAQMD Section 11-2-30.

5. Provide a copy of the waste shipment record to the disposal site owner or operator upon delivery.
6. Contact transporter and/or owner of the disposal site if the waste shipment has not arrived within 35 days of initial acceptance by the transporter as hazardous waste.
7. Provide a written report to the Air Pollution Control Officer (APCO) if the waste shipment is not received within 45 days of initial acceptance by the transporter.

G-5. MONITORING AND RECORDS

G-5.1 General

Control of visible dust will be the primary responsibility of the contractor working at the Site. As an additional layer of protection, monitoring to ensure compliance with the provisions of this plan will be performed by an independent third party. This independent third party will provide quality assurance monitoring and will have the authority to direct the contractor to implement the measures outlined below if visible dust is observed. During any monitoring or observation, the contractor, the master developer and/or the independent third party will use the timelines and processes outlined in Section G-4 to guide response actions, recordkeeping and descriptions of mitigation measures employed at the Project Area. This section describes the observation, monitoring, recordkeeping and reporting requirements.

G-5.2 Dust Monitoring Procedures

This section describes monitoring procedures using particulate monitoring instruments and visual observation by the contractor and an independent third party.

Monitoring includes the following activities:

- Daily visual monitoring during earthmoving activities (contractor);
- Perimeter air monitoring using air monitoring instrumentation (third party);
- Quality assurance monitoring (third party).

G-5.2.1 Daily Visual Monitoring during Earth Disturbing Activities

Daily visual monitoring during all earth disturbing activities is the primary responsibility of the contractor. If criteria are met regarding dust generation at the point of earth disturbance the contractor must follow the processes outlined in Section G-4.1 to rectify the particular operation causing the problem. The contractor is encouraged to work directly with the independent third party to communicate the mitigation requirements to workers in the field and to address concerns voiced by regulatory agency staff that may visit the construction site from time to time.

G-5.2.2 Perimeter Air Monitoring Instruments

Prevailing wind at Hunters Point is from the west or west-northwest and towards the east or southeast as shown on Figure G-2. From time-to-time, there may be two or more separate work areas and decisions about monitoring can be made independently for each area. In addition, if the potential dust generating activities are contained within even smaller work areas within each parcel then decisions about those areas can be made independently.

Monitoring locations will initially be established based on the prevailing wind directions and will be checked regularly and adjusted if necessary to maintain downwind coverage.

Real-time particulate dust monitors will be used to monitor for particulates. The action level and details of the monitoring instruments, locations, and the monitoring frequency will be submitted by the master developer and approved by SFDPH EHS based on the Particulate Monitoring System and Approval Form attached in Appendix A. The details of the system (layout, number of monitors, etc.) can be changed, as needed, through email submittal and approval by email from SFDPH EHS. The use of this form and the ability to change the parameters of the monitoring are intended to allow flexibility within the overall objectives of the particulate monitoring program while still meeting or exceeding all health standards.

No particulate monitoring is required when the construction site is shut down and no work is being conducted and no vehicles are being driven on unpaved surfaces. This is the presumed condition on weekends and holidays. However, if strong sustained winds are predicted during non-work times (i.e., holidays and weekends), dust monitoring will be conducted during the predicted high-wind timeframe.

National Ambient Air Quality Standards (NAAQS) and the California State Ambient Air Quality Standards (CSAAQS) are designed to protect the general public from airborne particulates generated in the urban, suburban and rural environments. The NAAQS and the CSAAQS are not meant to be applied to site specific actions and related air quality but instead are used in an attempt to attain city or region-wide ambient air quality goals for the benefit of the general public. The current standards are:

1. 24 Hour National Ambient Air Quality Standard

- PM-10: 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) average per 24 hour day
(Not to be exceeded more than once per year on average over 3 years)

- PM-2.5: 35 ~~micrograms per cubic meter~~ $\mu\text{g}/\text{m}^3$ average per 24 hour day (98th percentile, averaged over 3 years)
2. 24 Hour State Ambient Air Quality Standard
- PM-10: 50 ~~micrograms per cubic meter~~ $\mu\text{g}/\text{m}^3$ average per 24 hour day

It should be noted that the City and County of San Francisco (CCSF) is a non-attainment area for the NAAQS for PM-2.5. CCSF is also a non-attainment area for the CSAAQS for PM-10. Non-attainment areas are areas of the country where air pollution levels persistently exceed the NAAQS as designated by United States Environmental Protection Agency (USEPA).

In accordance with Article 31 requirements, a perimeter action level for PM-10 of 35 $\mu\text{g}/\text{m}^3$ average per 30 minutes is used at HPS for perimeter monitoring during dust generating activities. Achievement of the Article 31 standard will also achieve the CSAAQS.

G-5.2.3 Independent Third Party

The independent third party will observe the potential dust generating activities and implementation of the DCP mitigation requirements and make notations on the Appendix B forms. The details of the independent third party observation schedule can be changed, as needed, through email submittal and approval by email from SFDPH EHS.

G-5.3 Recordkeeping and Reporting

G-5.3.1 Particulate Monitoring Instruments Recordkeeping and Reporting

Dust particulate monitoring instruments will be equipped with data loggers. Particulate monitoring data will be reviewed with the contractor on a regular basis. Particulate monitoring data and locations of monitoring instruments will be transmitted to SFDPH on a regular basis with notations made about any irregularities in monitoring equipment or results above the action level and corresponding action taken to mitigate the potential problems. Timing of the submittal of data to SFDPH and review of data with contractor will be specified on the Appendix A Particulate Monitoring System Approval Form.

Electronic submittal of particulate monitoring data will include a statement by appropriate personnel certifying that the data has been reviewed by qualified personnel and noting any levels above approved limits and any actions taken as a result of the results.

G-5.3.2 Independent Third Party Recordkeeping and Reporting

The Independent Third Party will fill out the Inspection Checklist (Appendix B) on a regular basis based on their inspections. The checklist results will be reviewed with the contractor on a regular basis. The Independent Third Party will submit the checklists to SFDPH on a regular basis. The schedule for inspections, review and submittal of the checklists will be specified and approved by SFDPH through the Appendix A Particulate Monitoring System Approval Form.

The Hunters Point Shipyard Project area, and San Francisco in general, is subject to significant daily variation in wind direction and speed. For example, the wind can be calm in the morning and can then increase significantly in the afternoon. Wind Direction will be determined with a wind sock, nearby weather station data, or other similar wind direction monitoring device. This variation in daily wind direction and speed will be documented on the Appendix B checklist. The Appendix B checklist also contains information concerning site activities, descriptions of specific dust mitigation measures and any recommendations for enhanced mitigation measures if found to be necessary. Shut down periods that occur during normal work hours will be noted on Inspection Checklist or other report.

G-5.4 Community Complaints

A publicly visible sign with the telephone number to contact regarding dust, noise, or odor complaints will be posted prior to starting construction and maintained during construction. Signs should be in multiple languages commonly spoken in the local community and should include a phone contact. For general complaints, the contractor will respond and take corrective action within 24 hours.

During hours of active construction phone calls will be answered or returned as soon as possible. During non-work hours phone calls may be diverted to a message machine.

G-6. REFERENCES

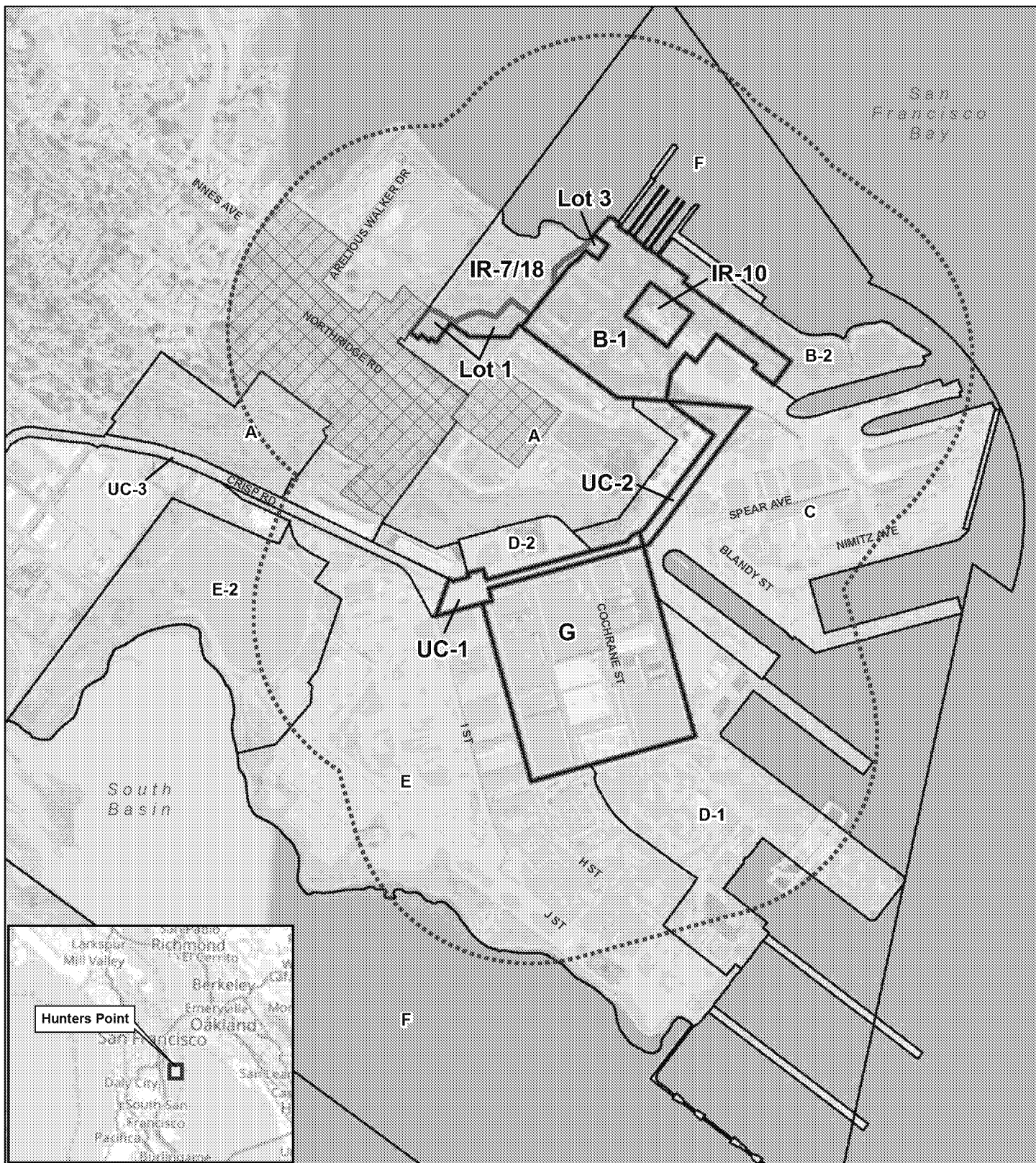
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



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FIGURES



Legend

-  1/4 Mile Parcel Buffer
-  Location of Potential Sensitive Receptor
-  Navy Parcel Boundary
-  Site Boundary

Basemap source: ESRI, 2014



0 1,000 Feet

Site Boundary with 1/4 Mile Buffer

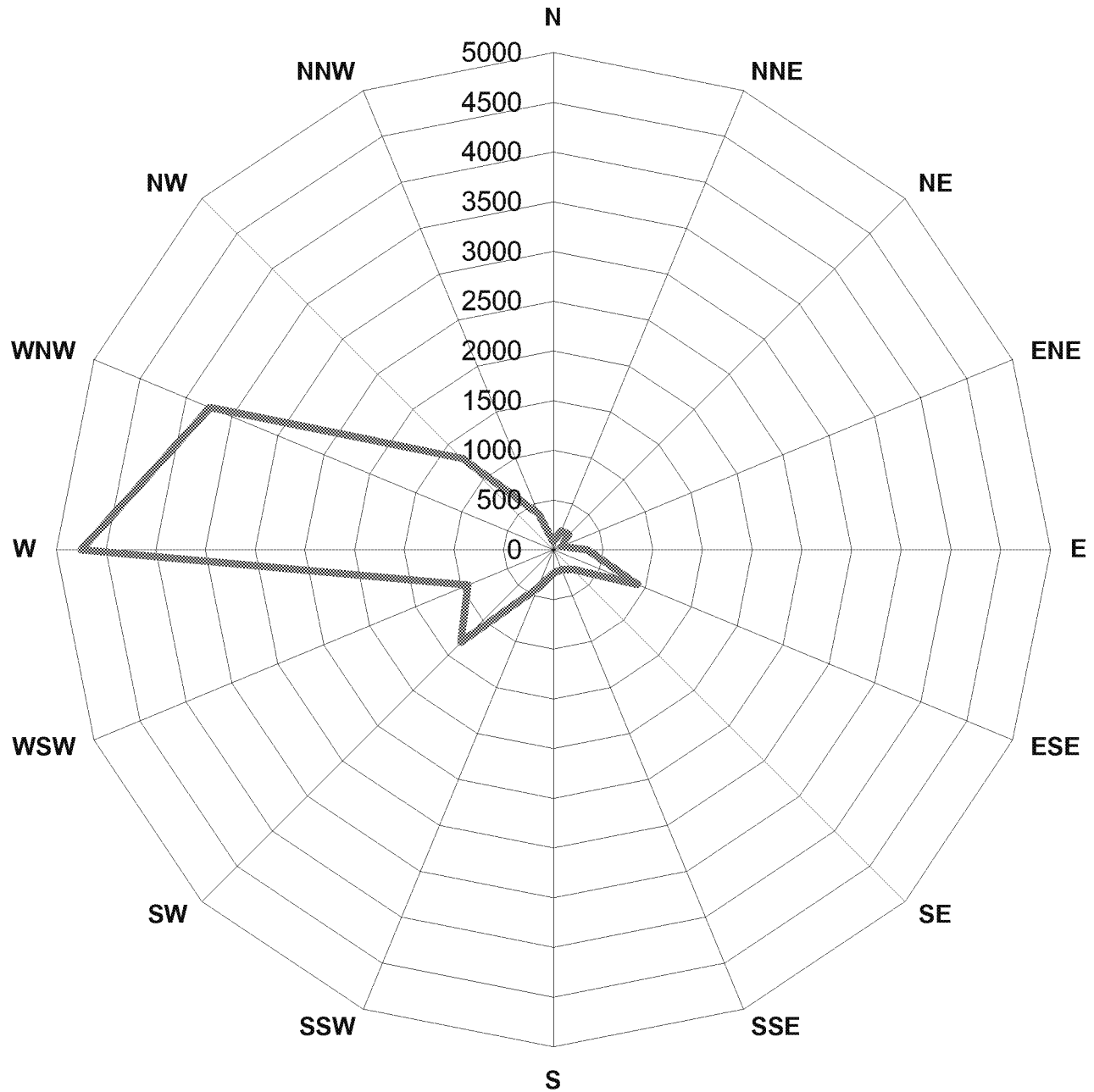
Risk Management Plan
Hunters Point Shipyard, San Francisco, CA

Geosyntec
consultants

Figure
G-1

WR1247A

November 2016



Number of events

Notes:

1. The wind rose represents wind direction data recorded at an onsite meteorological station for 2015. Data have been collected continuously since construction work began at Hunters Point; 15,000 data points were collected in 2015.
2. The predominant wind direction is from the West or West-Northwest.

Wind Rose Diagram

Hunters Point Artist Parcels
San Francisco, California

Geosyntec
consultants

WR1247

February 2016

**Figure
G-2**

APPENDIX A

Particulate Monitoring System
and
Approval Form

APPENDIX A
DUST CONTROL PLAN
HUNTERS POINT SHIPYARD
PARTICULATE MONITORING SYSTEM

Particulate Monitoring Instrument Details

Real time particulate monitors with data-logging capabilities will be utilized to collect data. The network will consist of stationary perimeter monitors.

Perimeter Monitors

A perimeter monitoring network of real time particulate monitors will be established. Initially, one monitor will be placed upwind of site activities, one downwind of site activities and one trans-gradient to the wind direction. If new activities arise or come to completion within the same sub parcel, the perimeter monitor locations may expand or contract accordingly. Changes to location and number of the perimeter monitors must be approved by SFDPH prior to implementation.

The perimeter monitors results will be used to track compliance with the Perimeter Action Level and to guide the selection of additional mitigation measures, if found to be necessary.

Monitoring Frequency

Lennar may propose to reduce or discontinue particulate monitoring based on demonstrated and ongoing compliance with the DCP. If a reduction or cessation of particulate monitoring is approved by the SFDPH, the independent third party observer will still have the obligation to inspect the site activity, record observations and make recommendations for additional mitigation measures on the Independent Third Party Inspection Checklist for as long as required.

Monitoring Resumption

If monitoring is reduced or discontinued, Lennar will either start the cycle over again or will propose a new monitoring scheme by expanding or adjusting the already established perimeter monitors for the following reasons:

1. Verified visible dust complaints from tenants, workers or adjacent residents
2. Use of a new construction crew unfamiliar with the required dust control at this site
3. Voluntary election by the contractors or Lennar to restart the particulate monitoring instrumentation
4. Changes in site conditions that might warrant a restart of the particulate monitoring instrumentation

Particulate Monitoring Data Reporting

The particulate data will be reported as described in the DCP and on a schedule as listed in the Approval Form. The data reports will include a figure with the monitoring locations. If the monitor locations change due to weather pattern shifts or a shift in site activity, the new locations will be noted and marked on a map attached to the data reports. The data will be reviewed with the contractor on a schedule as approved in the Approval Form.

Independent Third Party Reporting

The Independent Third Party Inspection Checklist (Appendix B) will be completed, reviewed with contractor and submitted to SFDPH as described in the DCP with a schedule as specified on the Approval Form.

APPENDIX A
Dust Control Plan
Hunters Point Shipyard

Particulate Monitoring System
Approval Form

DATE	
Name of person submitting request	
Company	
Role on Project	
Contact Information	

Proposed Changes from Previous Approval (include only those with changes)	
Number of days after SFDPH approval received that changes are anticipated to be implemented	
Particulate Monitor Model Number	
Perimeter Monitors	
<ul style="list-style-type: none"> • Number of Monitors 	
<ul style="list-style-type: none"> • Location of Monitors 	
<ul style="list-style-type: none"> • Perimeter Action Level 	
<ul style="list-style-type: none"> • Averaging Time 	
<ul style="list-style-type: none"> • Frequency of monitoring 	
<ul style="list-style-type: none"> • Frequency of submittal of data to SFDPH (excel workbook with data and graph with Action Level depicted) 	
<ul style="list-style-type: none"> • Frequency of data review with contractor 	
Independent Third Party Inspection Checklist	
<ul style="list-style-type: none"> • Frequency of Inspections 	
<ul style="list-style-type: none"> • Frequency of submittal of checklists to SFDPH (excel workbook with data and graph with Action Level depicted) 	
<ul style="list-style-type: none"> • Frequency of checklist review with contractor 	

Previously Approved and Unchanged Parameters	
Particulate Monitor Model Number	
Perimeter Monitors	
• Number of Monitors	
• Location of Monitors	
• Perimeter Action Level	
• Averaging Time	
• Frequency of monitoring	
• Frequency of submittal of data to SFDPH (excel workbook with data and graph with Action Level depicted)	
• Frequency of data review with contractor	
Independent Third Party Inspection Checklist	
• Frequency of Inspections	
• Frequency of submittal of checklists to SFDPH (excel workbook with data and graph with Action Level depicted)	
• Frequency of checklist review with contractor	

Please note: emails or other forms containing similar information may be used in place of this form.

APPENDIX B

Independent Third Party Inspection Checklist

APPENDIX B
Hunters Point Shipyard
Asbestos Dust Mitigation & Fugitive Dust Control Plan
Independent Third Party Dust Inspection Checklist

Inspector Name & Company:	Date/Time:
Weather (include wind speed & direction, temp, overhead conditions, other):	BAAQMD Spare the Air day? <input type="checkbox"/> Yes <input type="checkbox"/> No
Project Name and Location:	

- 1. Equipment and Activity Description** Provide a description of equipment currently onsite and observed work activities. Use attached map to show locations of activities and to provide descriptions.

A. Equipment

B. Activity Description

2. Observations

A. Describe whether dust is being generated and whether it is crossing the project boundary.

If dust is present, describe contractor response and timing of response. Note location and activity at issue.

B. Describe conditions of paved roads both within the work area and at/adjacent to construction site exits. Note whether trackout is present and contractor response.

C. Describe observed mitigation measures in use (hoses, water trucks, street sweeper, hand sweeping, road wetting, exit protection including stabilized entrance/exit, wheel wash, etc.).

D. Describe material handling activities and associated mitigation measures in use (drop heights minimized, vehicles tarped, proper loading, driving speeds, offsite transport occurring, water added to material processing areas, water placed on internal haul routes, etc.).

E. Describe stockpile control measures, temporary and final stabilization of inactive or completed areas. Note location and type of stockpile control and/or stabilization methods.

3. Monitor Information Provide monitor number, current reading and time.

4. Communications

A. Provide details of communication with construction managers, site superintendents and/or regulatory agency personnel. Include name(s) and time(s) of discussion. Include recommendations here for enhanced mitigation measures and/or contractor timeline to rectify a current issue.

B. Have any complaints been received via the Lennar Hotline? If so, provide response.

5. Offsite observations/activities. Provide location and time along with the description.

6. Comments

APPENDIX H

Soil Import Plan Outline

Outline for Soil Import Plan

Article 31 of the San Francisco (SF) Health Code requires a Soil Import Plan (SIP) to be submitted for approval by the SF Department of Public Health for any construction at the Hunters Point Shipyard that requires a permit (as detailed in the appropriate municipal codes). The current version of an Article 31 approved SIP contains these sections.

1. INTRODUCTION
 - 1.1 Document Objective
 - 1.2 Regulatory Framework
 - 1.3 Certification
 - 1.4 Intended Users of the SIP
2. PROJECT DESCRIPTION
 - 2.1 Construction Scope and Import Materials
 - 2.2 Imported Soil Volume
3. IMPORT MATERIAL THREE-STEP ACCEPTANCE PROCESS
 - 3.1 Step 1 – Preliminary Source Screening
 - 3.2 Step 2 – Import Material Sampling and Chemical Testing Program
 - 3.2.1 Special Category Sampling and Chemical Testing
 - 3.2.1.1 Rock Sourced from a Single Virgin Rock Quarry
 - 3.2.1.2 Recycled Materials
 - 3.2.1.3 Import from Parcels A and D-2
 - 3.2.1.3.1 Source Screening Exception for General Fill and Durable Cover
 - 3.2.1.3.2 Testing Exception for General Fill
 - 3.2.1.3.3 NOA Only Testing for Durable Cover
 - 3.2.1.4 Source Screening and Testing Plan Exception for the Hardscape Base Layer
 - 3.2.2 Testing Plan
 - 3.2.2.1 Sampling Frequency and Soil Sampling Protocol
 - 3.2.2.1.1 Sampling Frequency
 - 3.2.2.1.2 Soil Sampling Procedures
 - 3.2.2.1.3 Decontamination Procedures
 - 3.2.2.1.4 Sample Numbering and Labeling
 - 3.2.2.1.5 Sample Packaging and Shipment
 - 3.2.2.1.6 Sample Chain-of-Custody
 - 3.2.2.2 Chemical Testing Plan
 - 3.2.2.2.1 Article 31 COCs and ROCs
 - 3.3 Step 3 – Material Acceptance
 - 3.3.1 Chemical Acceptance Criteria

- 3.3.1.1 Durable Cover Soil Chemical Acceptance Criteria
 - 3.3.1.2 General Fill Chemical Acceptance Criteria
 - 3.3.2 Import Material Acceptance
 - 3.3.2.1 Durable Cover Soil
 - 3.3.2.2 General Fill
 - 3.3.2.3 Recycled Material Extra Inspection Requirement
 - 3.3.3 Rejected Material
 - 3.3.4 Three Year Time Limit on Approvals
- 4. RECORDKEEPING
- 5. REFERENCES

LIST OF TABLES

- Table 1: Minimum Sample Frequency Requirements**
- Table 2: Screening Criteria**
- Table 3: Chemical Testing Plan**

LIST OF APPENDICES

- Appendix A: Information Advisory Clean Imported Fill Material, Department of Toxic Substances Control**
- Appendix B: Import Material Review and Acceptance Form**
- Appendix C: Calculated PRGs for General Fill and Durable Cover Soil**

APPENDIX I

Groundwater Management Plan Outline

GROUNDWATER MANAGEMENT PLAN OUTLINE

A Groundwater Management Plan (GMP) will be prepared to describe the pumping of groundwater (dewatering) in support of development activities. The outline presented below will be used to guide preparation of the GMP, such that, a consistent format and content is generated thereby facilitating regulatory review and approval. This outline is intended to be utilized for the development of GMPs associated with temporary projects of short duration. While uncommon, there may be projects that propose pumping of groundwater on a permanent basis (e.g., ongoing dewatering of the area around and within below grade parking lots). If this is proposed, a much more detailed plan encompassing permanent dewatering system design, geotechnical considerations, permitting and construction, among other items, would be necessary. The outline presented herein could provide a framework for designing and permitting such a system but the purpose of this outline is geared towards projects that require temporary dewatering to support development construction.

In accordance with the RMP, Section 4.3.2, a GMP must be submitted to and approved by the FFA Signatories prior to field activities occurring. Parcels within the Hunters Point Shipyard (HPS) have been the subject of extensive investigation and remediation via the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process and the petroleum hydrocarbon corrective action process, thus, there are numerous reports and sources of data that can be used to assist with the preparation of a GMP. At a minimum, the Record of Decision, Remedial Design Package, Remedial Action Work Plans, Remedial Action Completion Reports, Petroleum Corrective Action Reports, and Petroleum Corrective Action No Further Action letters prepared for each Parcel provide a summary of known groundwater conditions including presentation of sampling locations and analytical results. These plans and data collected in support of the Navy's cleanup activities can be found at the information repositories (See Section 1.5 of the RMP). Briefly, and as described in Appendix C of the RMP, localized areas of groundwater contamination are present within each Parcel that may affect the post closure development activities.

The outline presented below uses Section 4.3.2 of the RMP to define certain information to be included in a GMP. Also presented below is other required information that describes the scope of work: Project Description, Subsurface Conditions, Hydrogeological Analysis, Description of Groundwater Extraction Means and Methods and Permitting and Reporting Requirements. The GMP should be prepared well in

advance of actual construction activities to ensure adequate time is allowed for review and comment by the FFA Signatories ultimately resulting in approval of the GMP.

1.0 INTRODUCTION

- 1.1 Project Description – This section will provide information about the project that will pump groundwater. Items to address:
 - 1.1.1 Type of project (building construction, park construction, or infrastructure construction). Include information like depth of planned excavation, description of what will be built in the subsurface (foundation, elevator pit, storm/sanitary sewer pump station, etc.). Also include information whether the project will require temporary or long term/permanent dewatering (e.g., below grade parking garage)
 - 1.1.2 Project Schedule. A project schedule should be presented. This schedule should, at a minimum, include the following line items: presentation of action(s) requiring dewatering, installation of groundwater extraction systems, schedule and duration of anticipated extraction activities, total project duration.
- 1.2 Local Groundwater Description – This section will provide a description of known groundwater conditions in and around the area proposed for dewatering.
 - 1.2.1 Presentation and discussion of existing groundwater data (locations, levels, flow direction, flow velocity, chemicals of concern (COCs), type of data, date of collection, source of data with references).
 - 1.2.2 Discussion of known groundwater plumes
 - 1.2.2.1 Location relative to proposed project
 - 1.2.2.2 Description of completed or ongoing remediation efforts. Include current regulatory status of plume(s)
 - 1.2.3 Presentation of relevant soil and/or geologic conditions (provide source of data with references) and presentation of geologic cross sections.

2.0 GROUNDWATER MANAGEMENT PLAN

2.1 Description/Presentation of Hydrogeologic Evaluation – This section will present general hydrogeological conditions at the project site and the type of further hydrogeologic evaluation that will need to be performed prior to the proposed dewatering project. Particular emphasis will be placed on answering the fundamental question of whether the proposed dewatering will negatively impact known areas of affected groundwater. This section will take into consideration all of the parameters listed above. At a minimum, this section should identify the project specific evaluation and should include the following:

2.1.1 Radius of influence of pumping

2.1.2 Description of potential negative effects on known groundwater plumes, if any

2.1.2.1 Provide a figure depicting nearby known plumes, locations of nearby existing monitoring/extraction wells.

2.1.2.2 Provide a description of the frequency of monitoring performed by others (e.g., the base-wide groundwater monitoring program).

2.1.2.3 Present most recent data set from the nearby and existing groundwater monitoring wells to establish baseline water quality.

2.1.3 Proposed mitigation measures to minimize/eliminate negative effects on known groundwater plumes.

2.1.3.1 Pumping rate and/or duration to minimize/eliminate negative effects on known groundwater plumes

If necessary based on the judgment of a qualified professional, the installation of “guard wells” may be appropriate to provide an early warning of adverse impacts from the temporary pumping on the nearby plume.

- 2.1.3.2 If necessary, collect groundwater samples from select wells in the vicinity and as presented in Section 2.1.2.1 and 2.1.3.2, if basewide groundwater monitoring program is not already collecting and analyzing samples with sufficient frequency to ensure existing plumes are not negatively affected by localized and temporary pumping.
- 2.1.3.3 Other engineering measures (e.g., sheet pile walls, tide fluctuation management, injection grouting, etc.)
- 2.1.4 Suggested Permit and Regulatory Structure
 - 2.1.4.1 This Section will propose a permit/regulatory structure to discharge. Should include a conceptual description of, at a minimum, permit discharge requirements and the means and methods to comply with the permit requirements.
- 2.2 Description of Groundwater Extraction – This section is based on the project needs and the results of the hydrogeologic evaluation presented in Section 2.0 of the GMP. This section will present the following information or identify where and when it must be provided as required in the discharge permit:
 - 2.2.1 Duration of dewatering efforts. Essential to make the distinction between a temporary effort vs. long term or permanent dewatering that will function for the life of the proposed project
 - 2.2.2 Means/methods of pumping and discharge
 - 2.2.2.1 Description of dewatering system (pump type, piping type and layout, treatment system components, discharge point, etc.)
 - 2.2.2.2 Description of specific control measures to prevent silt generation or the discharge of silt-laden water (both at point of pumping and any “end of pipe” measures)
 - 2.2.2.3 Description of chemical treatment to address pre-existing condition of extracted groundwater (e.g.,

- activated charcoal, physical filtration, pH adjustment, etc.)
- 2.2.2.4 Description of any additional measures to slow or minimize groundwater infiltration into below grade excavations for the duration of the project (e.g., sheet pile walls, injection grouting, management of tidal water if close to the bay margin, not-to-exceed pumping rates, etc.)
 - 2.2.2.5 Description of conveyance system, temporary storage (if any)
 - 2.2.2.6 Description of discharge point. At a minimum, describe physical location and ownership of discharge point (e.g., San Francisco Public Utilities Commission (SFPUC) combined system). Describe several alternative discharge points at each parcel, if possible.
 - 2.2.2.7 Where appropriate, provide schematic or engineering drawings of dewatering and treatment systems, locations of any wells, discharge point(s), sampling point(s)
 - 2.2.2.8 If discharging to the San Francisco Bay, provide communication and documentation on approval process with RWQCB/SFDPH, etc. The discharge of extracted groundwater may require coverage under the Groundwater VOC and Fuel General Permit (Order No. R2-2012-0012, NPDES No. CAG912002).

3.0 PERMITTING AND REPORTING REQUIREMENTS

- 3.1 Description of Permit Requirements – This section will present the permit itself (attached to the GMP). Also to be presented are a description of specific compliance requirements to be met.
 - 3.1.1 Performance/discharge criteria (e.g., turbidity, pH, chemical-specific parameters, conductivity, biological oxygen demand [BOD], dissolved oxygen [DO], etc.).

- 3.1.2 Sampling criteria. Should include field monitoring, field observation, collection and laboratory analysis of discharge water samples
- 3.2 Description of Reporting Requirements – This section will present the following:
 - 3.2.1 Permit-specific reporting obligations could include the following:
 - 3.2.1.1 Field notes/observations
 - 3.2.1.2 Laboratory results
 - 3.2.1.3 Quarterly/annual reporting
 - 3.2.1.4 Project close out process
 - 3.2.2 Regulatory Agency Involvement and Reporting
 - 3.2.2.1 SFPDPH requirements via Article 31
 - 3.2.2.2 Other City and County of San Francisco (City) entities, when appropriate: SFPUC, San Francisco Department of Public Works (SFPDPW-Bureau of Construction Management [BCM]), Department of Building Inspection (DBI)
 - 3.2.2.3 RWQCB (TPH and Hazardous Substances comingled with TPH), DTSC and possibly USEPA (for comingled Hazardous Substances and TPH).
 - 3.2.2.4 Navy
 - 3.2.2.5 Refer to ongoing RMP and Operation and Maintenance Plan (O&M Plan) reporting obligations of owners

4.0 HEALTH AND SAFETY

- 4.1 Site Specific Health and Safety Measures
 - 4.1.1 This section will reiterate groundwater-specific health and safety measures designed to protect workers conducting dewatering and subsurface work. It is assumed that a project-specific Environmental Health and Safety Plan (EHSP) will be prepared by each contractor that will address worker health and safety issues

for the duration of the project (See Section 3.1 of the RMP). It is this ESHP from which the groundwater-specific health and safety measures are taken.

5.0 DISCOVERY OF UNKNOWNNS

5.1 Refer reader to Unexpected Condition Response Plan (RMP, Appendix E)

6.0 REFERENCES

This section will present typical bibliographic information as well as physical location of all reports used in the preparation of this document.

ATTACHMENTS (As Appropriate)

Figure 1: Site Location Map

**Figure 2: Site Plan Showing Project Footprint, Dewatering Location(S),
Conveyance System, Treatment/Storage System Location,
Discharge Point, Sampling Location(s)**

Table 1: Analytical Data Used in the Hydrogeologic Analysis

Table 2: Sampling and Analysis Program

Attachment 1: Schematic or Engineering Drawings that Depict Entire System

TABLES

TABLE 1

Analytical Data Used
in the Hydrogeologic Analysis

TABLE 2

Sampling and Analysis Program

FIGURES

FIGURE 1
Site Location Map

FIGURE 2

Site Plan Showing Project Footprint,
Dewatering Location(s), Conveyance
System, Treatment/Storage System
Location, Discharge Point, Sampling
Location(s)

ATTACHMENTS

ATTACHMENT 1

Schematic or Engineering Drawings
that Depict Entire System